TAX CREDITS FOR INSTALLATION OF AIRBAGS IN AUTOMOBILES

HEARINGS

BEFORE THE

SUBCOMMITTEE ON
TAXATION AND DEBT MANAGEMENT

OF THE

COMMITTEE ON FINANCE
UNITED STATES SENATE

NINETY-SEVENTH CONGRESS

SECOND SESSION

ON

S. 1887

JANUARY 28 AND MARCH 2, 1982

Printed for the use of the Committee on Finance

U.S. GOVERNMENT PRINTING OFFICE
91-721 O WASHINGTON : 1982 HG 97-71

S361-29

COMMITTEE ON FINANCE

ROBERT J. DOLE, Kansas, *Chairman*

BOB PACKWOOD, Oregon
WILLIAM V. ROTH, Jr., Delaware
JOHN C. DANFORTH, Missouri
JOHN H. CHAFEE, Rhode Island
JOHN HEINZ, Pennsylvania
MALCOLM WALLOP, Wyoming
DAVID DURENBERGER, Minnesota
WILLIAM L. ARMSTRONG, Colorado
STEVEN D. SYMMS, Idaho
CHARLES E. GRASSLEY, Iowa

RUSSELL B. LONG, Louisiana
HARRY F. BYRD, Jr., Virginia
LLOYD BENTSEN, Texas
SPARK M. MATSUNAGA, Hawaii
DANIEL PATRICK MOYNIHAN, New York
MAX BAUCUS, Montana
DAVID L. BOREN, Oklahoma
BILL BRADLEY, New Jersey
GEORGE J. MITCHELL, Maine

Robert E. Lighthizer, *Chief Counsel*
Michael Stern, *Minority Staff Director*

Subcommittee on Taxation and Debt Management

BOB PACKWOOD, Oregon, *Chairman*

JOHN C. DANFORTH, Missouri
JOHN H. CHAFEE, Rhode Island
MALCOLM WALLOP, Wyoming
WILLIAM L. ARMSTRONG, Colorado

HARRY F. BYRD, Jr., Virginia
LLOYD BENTSEN, Texas
SPARK M. MATSUNAGA, Hawaii
RUSSELL B. LONG, Louisiana

CONTENTS

ADMINISTRATION WITNESSES

Page
Ballentine, Hon. J. Gregory, Deputy Assistant Secretary, Department of the Treasury ... 231
Peck, Hon. Raymond, Jr., Administrator, National Highway Traffic Safety Administration, Department of Transportation ... 236

PUBLIC WITNESSES

American Public Health Association, Stephen Teret ... 166
Beck, Lowell, president, National Association of Independent Insurers, Chicago, Ill ... 45
Center for Auto Safety, Clarence Ditlow, executive director ... 170
Claybrook, Joan, former Administrator, National Highway Traffic Safety Administration ... 182
Ditlow, Clarence, executive director, Center for Auto Safety ... 170
Ford Motor Co., Roger Maugh, director, Automobile Safety Office ... 223
Haddon, Dr. William, Jr., president, Insurance Institute for Highway Safety ... 23
Insurance Institute for Highway Safety, Dr. William Haddon Jr., president ... 23
Maugh, Roger, director, Automobile Safety Office, Ford Motor Co ... 223
McDermott, Brig. Gen. Robert F., president, United Services Automobile Association, accompanied by Douglas M. Fergusson, director of safety, Nationwide Insurance Companies ... 140
National Association of Independent Insurers, Lowell Beck, president ... 45
Teret, Stephen, American Public Health Association ... 166
United Services Automobile Association, Brig. Gen. Robert F. McDermott, accompanied by Douglas M. Fergusson ... 140

ADDITIONAL INFORMATION

Committee press releases ... 1
Description of S. 1887 by the Joint Committee on Taxation ... 3
Text of S. 1887 ... 9
Prepared statement of Senator Dole ... 15
Opening statement of Senator John C. Danforth ... 18
Narration of the film "Faces in Crashes" ... 24
Prepared statement of Lowell R. Beck ... 47
Prepared statement of Professor Nordhaus ... 62
Prepared statement of Robert F. McDermott ... 142
Prepared statement of Stephen Teret ... 168
Prepared statement of Clarence M. Ditlow III ... 172
Prepared statement of Joan Claybrook ... 187
Statement of Roger E. Maugh ... 226
Prepared statement of J. Gregory Ballentine ... 233
Prepared statement of Raymond A. Peck, Jr ... 241

COMMUNICATIONS

Automotive Occupant Protection Association ... 250
Chrysler Corp ... 255
CNA Insurance Companies ... 257
General Motors Corp ... 258
Lombard, J., Ludlow, Ky ... 263

Page
Mercedes-Benz of North America 265
Nassau County Traffic Safety Board 264
Nationwide Insurance Companies 267

TAX CREDIT FOR INSTALLATION OF AIRBAGS IN AUTOMOBILES

THURSDAY, JANUARY 28, 1982

U.S. SENATE,
SUBCOMMITTEE ON TAXATION AND DEBT MANAGEMENT,
COMMITTEE ON FINANCE,
Washington, D.C.

The subcommittee met, pursuant to call, at 9.05 a.m., in room 2221, Dirksen Senate Office Building, Hon. Bob Packwood (chairman) presiding.

Present: Senators Packwood, Danforth, and Byrd.

[The committee press releases announcing this hearing, the description by the Joint Committee on Taxation and the prepared statement of Senator Dole follow:]

Press Release No. 82-101

PRESS RELEASE

FOR IMMEDIATE RELEASE
January 7, 1982

COMMITTEE ON FINANCE
UNITED STATES SENATE
Subcommittee on Taxation
and Debt Management
2227 Dirksen Senate Office Bldg.

FINANCE SUBCOMMITTEE ON TAXATION AND DEBT MANAGEMENT SETS HEARING ON AUTOMOBILE SAFETY TAX BILL

The Honorable Bob Packwood, Chairman of the Subcommittee on Taxation and Debt Management of the Senate Committee on Finance, announced today that the Subcommittee will hold a hearing on Thursday, January 28, 1982 on a tax bill dealing with issues of automobile safety.

The hearing will begin at 9:00 a.m. in Room 2221 of the Dirksen Senate Office Building.

The following proposal will be considered:

S. 1887--Introduced by Senator Danforth. S. 1887 would allow automobile manufacturers a refundable tax credit to pay for the installation of airbags in 1984 automobiles and in later model automobiles. The bill would also levy an excise tax on sales of new automobiles; in 1984 and later model years, which do not employ this lifesaving technology.

Press Release No. 82-108

PRESS RELEASE

FOR IMMEDIATE RELEASE
February 24, 1982

COMMITTEE ON FINANCE
UNITED STATES SENATE
Subcommittee on Taxation
and Debt Management
2227 Dirksen Senate Office Bldg.

FINANCE SUBCOMMITTEE ON TAXATION AND DEBT MANAGEMENT SETS SUPPLEMENTAL HEARING ON AUTOMOBILE SAFETY TAX BILL

The Honorable Bob Packwood, Chairman of the Subcommittee on Taxation and Debt Management of the Senate Committee on Finance, announced today that the Subcommittee will hold a second hearing on Tuesday, March 2, 1982 on a tax bill dealing with issues of automobile safety. Senator Packwood announced that, at this second hearing, the Subcommittee will hear only from the Administration's witnesses, who were unable to testify at the earlier hearing held on January 28, 1982.

The hearing will begin at 2:00 p.m. in Room 2221 of the Dirksen Senate Office Building.

The specific legislation under consideration is S. 1887, introduced by Senator Danforth. S. 1887 would allow automobile manufacturers a refundable tax credit to pay for the installation of safety airbags in 1984 automobiles and in later model automobiles. The bill would also levy an excise tax on sales of new automobiles, in 1984 and later model years, which do not employ safety airbags.

DESCRIPTION OF S. 1887

Relating to

TAX CREDIT FOR INSTALLATION OF SAFETY AIRBAGS IN NEW AUTOMOBILES AND EXCISE TAX ON SALE OF NEW AUTOMOBILES WITHOUT SAFETY AIRBAGS

Scheduled for a Hearing

Before the

Subcommittee on Taxation and Debt Management

of the

Senate Committee on Finance

on

January 28, 1982

Prepared by the Staff

of the

Joint Committee on Taxation

January 26, 1982

JCX-1-82

CONTENTS

Page

Introduction . . . .

I. Summary of the Bill . . . .

II. Description of the Bill . . . .

A. Tax credit to automobile manufacturers for installation of safety airbags . . . .

B. Excise tax on automobiles without safety airbags . . . .

C. Revenue effect . . . .

INTRODUCTION

The Senate Finance Subcommittee on Taxation and Debt Management has scheduled a hearing on S. 1887 (introduced by Senator Danforth) on January 28, 1982. The bill deals with allowing automobile manufacturers a refundable tax credit for the installation of safety airbags in 1984 and later model automobiles, as well as imposing an excise tax on sales of 1984 and later model automobiles without safety airbags.

The first part of the document is a summary of the bill. The second part is a description of the bill, including present law, issues, explanation of provisions and effective dates. The third part presents the estimated revenue effects.

I. SUMMARY OF THE BILL

No income tax credit is allowed under present law exclusively for the manufacture of an automobile on which an automatic safety airbag has been installed, nor is a manufacturers excise tax imposed on the sale of an automobile because it has not been equipped with an automatic safety airbag. The Internal Revenue Code does not include any taxes or tax credits that are intended to encourage the installation of any specific automotive safety equipment.

S. 1887 would allow a $300 refundable income tax credit to a manufacturer for the domestic manufacture of each passenger automobile on which an automatic safety airbag has been installed by the manufacturer. The credit would apply to the manufacture of automobiles for the 1984 model year or any later model year.

In addition, the bill would impose a $300 manufacturers excise tax on the sale or first lease of a passenger automobile by a manufacturer, producer, or importer, if an automatic safety airbag has not been installed on the automobile. This excise tax would apply to the sale or lease of automobiles for the 1984 model year or any later model year. The tax would not apply to sales for further manufacture, export, or use as supplies for vessels or aircraft. If a taxpayer acquires (and begins to use within one year of the first sale for use) an automobile on which this excise tax was imposed, the income tax basis of the automobile would be reduced by the amount of the excise tax.

II. DESCRIPTION OF THE BILL

A. Tax Credit to Automobile Manufacturers for Installation of Safety Airbags

Present Law

No income tax credit is allowed in present law exclusively for the manufacture of an automobile, however it has been equipped. The Internal Revenue Code does not include any taxes or tax credits that are intended to encourage the installation of any specific automotive safety equipment.

The earned income credit (Code sec. 43) and credits for payment of certain taxes (secs. 31 and 39) are refundable to a taxpayer to the extent they exceed the taxpayer's income tax liability (computed before reduction for these credits and after allowable reductions for other credits). All other income tax credits provided under present law are nonrefundable.

Issues

The principal issues are whether an income tax credit should be allowed for the domestic manufacturer of an automobile because it has been equipped with an automatic safety airbag and whether this credit should be refundable.

Explanation of Provision

The bill provides that a $300 refundable income tax credit would be allowed to a manufacturer for the domestic manufacture of each passenger automobile on which an automatic safety airbag has been installed by the manufacturer. For the credit to be allowed, the airbag would have to meet the requirements of section 126 of the National Traffic and Motor Vehicle Safety Act of 1966.

For purposes of this provision, the terms "passenger automobile" and "manufacturer" 1/ have the meanings given them by sections 501(2) and 501(8), respectively, of the Motor Vehicle Information and Cost Savings Act.

In addition, the provision would authorize the Secretary of the Treasury to assess a taxpayer for the amount of a safety airbag credit that was erroneously allowed.

Effective Date

This provision would apply to the manufacture of automobiles for the 1984 model year or any later model year.

B. Excise Tax on Automobiles Without Safety Airbags

Present Law

Under present law, a manufacturers excise tax is imposed on the sale or first lease of an automobile by a manufacturer, producer or importer, if the automobile does not meet prescribed fuel economy standards (a "gas guzzler tax") (Code secs. 4064 and 4217). A sale to a State or local government or to a nonprofit educational organization for its exclusive use, generally exempt from manufacturers excise taxes, is not exempt from the gas guzzler tax (sec. 4221). If a taxpayer acquires (and begins to use within one year of the first sale for use) an automobile on which this excise tax was imposed, the income tax basis of the automobile is reduced by the amount of the excise tax (sec. 1016(d)).

Present law does not impose a manufacturers excise tax on the sale of an automobile because it has not been equipped with an automatic safety airbag or any other passenger safety device.

Issue

The principal issue is whether the sale of a passenger automobile should be subject to a manufacturers excise tax if it has not been equipped with an automatic safety airbag.

1/ An amendment to the definition of "manufacturer" may be required to limit the credit to domestically manufactured automobiles.

Explanation of Provision

The bill would impose a $300 manufacturers excise tax on the sale or first lease of a passenger automobile by a manufacturer, producer or importer, if a qualified automatic safety airbag has not been installed on the automobile. For purposes of this provision, a safety airbag and passenger automobile have the same meaning as they do for purposes of the income tax credit that this bill would provide. (See description in sec. IIA, above)

This excise tax would not apply to sales for further manufacture, export, or use as supplies for vessels or aircraft. As in the case of the gas guzzler tax, a sale to a State or local government or to a nonprofit educational organization would not be exempt from the safety airbag tax. Also, as in the case of the gas guzzler tax, the income tax basis of the automobile would be reduced by the amount of the safety airbag tax when a taxpayer acquires (and begins to use within one year of the first sale for use) an automobile on which the airbag tax was imposed.

Effective Date

This provision would apply to the sale of passenger automobiles for the 1984 model year or any later model year.

C. Revenue Effect

After domestic automobile manufacturers have designed automobile and production lines to equip each vehicle with an automatic safety airbag, the tax and credit would result in an estimated net reduction in budget receipts of $2 billion in each fiscal year.

II

97TH CONGRESS
1ST SESSION

S. 1887

To amend the Internal Revenue Code of 1954 to expedite the installation of automatic safety airbags.

IN THE SENATE OF THE UNITED STATES

NOVEMBER 24 (legislative day, NOVEMBER 2), 1981

Mr. DANFORTH introduced the following bill; which was read twice and referred to the Committee on Finance

---

A BILL

To amend the Internal Revenue Code of 1954 to expedite the installation of automatic safety airbags.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That part I of subchapter A of chapter 32 of the Internal Revenue Code of 1954 (relating to motor vehicle excise taxes) is amended by adding at the end thereof the following new section:

"SEC. 4065. FAILURE TO INSTALL AIRBAGS.

"(a) IMPOSITION OF TAX.—There is hereby imposed on the sale by the manufacturer of each 1984 or later model year passenger automobile with respect to which a qualified automatic safety airbag has not been installed a tax of $300.

"(b) DEFINITIONS.—For purposes of this section—

"(1) QUALIFIED AUTOMATIC SAFETY AIRBAG.—The term 'qualified automatic safety airbag' means an automatic safety airbag which meets the requirements of section 126 of the National Traffic and Motor Vehicle Safety Act of 1966.

"(2) PASSENGER AUTOMOBILE.—The term 'passenger automobile' has the meaning given such term by section 501(2) of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 2001(2)).

"(3) MODEL YEAR AND MANUFACTURER.—The terms 'model year' and 'manufacturer' have the meanings given such terms by paragraphs (4) and (5), respectively, of section 4064(b).".

(b)(1) Subsection (d) of section 1016 of such Code (relating to reduction in basis of automobile on which gas guzzler tax was imposed) is amended—

(A) by inserting "or 4065" after "4064" each place it appears, and

(B) by inserting "OR AIRBAG TAX" after "GAS GUZZLER TAX" in the heading thereof.

(2) The last sentence of subsection (a) of section 4221 of such Code (relating to certain tax-free sales) is amended by inserting "or 4065" after "4064".

(3) Section 4293 of such Code (relating to exemption for United States and possessions) is amended by inserting ", 4065," after "4064".

(4) The last sentence of paragraph (2) of section 6416(b) of such Code (relating to tax payments considered overpayments in the case of specified uses and resales) is amended by inserting "or 4065" after "4064".

(5) Subsection (e) of section 4217 of such Code (relating to leases) is amended—

(A) by inserting "or 4065" after "4064" each place it appears in paragraphs (1) and (2) thereof,

(B) by inserting "or total airbag tax" after "total gas guzzler tax" each place it appears in paragraph (2), and

(C) at the end of paragraph (3) insert a new subparagraph (C) as follows:

"(C) TOTAL AIRBAG TAX.—The term 'total airbag tax' means the tax imposed by section 4065.".

(6) The table of sections for part I of subchapter A of chapter 32 of such Code is amended by adding at the end thereof the following new item:

"Sec. 4065. Failure to install airbags.".

(c) The amendments made by this section shall apply with respect to 1984 and later model year automobiles (as defined in section 4065(b) of the Internal Revenue Code of 1954).

SEC. 2. (a) Subpart A of part IV of subchapter A of chapter 1 of the Internal Revenue Code of 1954 (relating to credits allowable) is amended by inserting immediately before section 45 of the following new section:

"SEC. 44H. CREDIT TO AUTOMOBILE MANUFACTURERS FOR INSTALLATION OF AIRBAGS.

"(a) CREDIT ALLOWED.—In the case of a manufacturer of 1984 model year or later passenger automobiles, there shall be allowed as a credit against the tax imposed by this chapter for the taxable year an amount equal to the product of—

"(1) $300, multiplied by

"(2) the number of such passenger automobiles which—

"(A) are manufactured in the United States by such manufacturer, and

"(B) with respect to which such manufacturer has installed an automatic safety airbag which meets the requirements of section 126 of the National Traffic and Motor Vehicle Safety Act of 1966.

"(b) DEFINITIONS.—

"(1) IN GENERAL.—For purposes of this section, the terms 'passenger automobile' and 'manufacturer' have the meanings given such terms by paragraphs (2) and (8), respectively, of section 501 of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 2001).

"(2) MODEL YEAR.—The term 'model year' has the meaning given such term by section 4064(b)(4).".

(b)(1) Subsection (b) of section 6401 of such Code (relating to amounts treated as overpayments) is amended—

(A) by striking out "and 43 (relating to earned income credit)," and inserting in lieu thereof "43 (relating to earned income credit), and 44H (relating to installation of automatic safety airbags)", and

(B) by striking out "and 43" and inserting in lieu thereof ", 43, and 44H".

(2) Sections 44C(b)(5), 44D(b)(5), 44E(e)(1), and 55(b)(2) of such Code are each amended by striking out "and 43" and inserting in lieu thereof "43, and 44H".

(3) Section 56(c) of such Code is amended by striking out "and 44G" and inserting in lieu thereof "44G, and 44H".

(4) Paragraph (4) of section 6201(a) of such Code (relating to assessment authority) is amended—

(A) by striking out "or section 43 (relating to earned income)," and inserting in lieu thereof "section 43 (relating to earned income), or section 44H (relating to installation of automatic safety airbags),", and

(B) by striking out "UNDER SECTION 39 OR 43" in the heading thereof.

(c) The table of sections for subpart A of part IV of subchapter A of chapter 1 is amended by inserting before the item relating to section 45 the following item:

"Sec. 44H. Credit to automobile manufacturers for installation of airbags.".

(d) The amendments made by this section shall apply to airbags installed in 1984 or later model cars in taxable years in which such airbags were installed.

○

STATEMENT FOR THE RECORD BY SENATOP DOLE, ON AUTOMOBILE SAFETY TAX BILL

I am pleased that the Subcommittee on Taxation and Debt Management has been able to schedule early hearings for S. 1887, Senator Danforth's automobile safety tax bill. The Senator's bill deals with a vital concern to all Americans, the reduction of the human costs associated with tragic automobile accidents. As I understand it, Senator Danforth's innovative bill also attempts to deal with the significant economic costs associated with highway accidents. Through the mechanism of a refundable tax credit, the bill proposes to shift to the Federal Government the cost of installing a safety airbag in automobiles manufactured in 1984 and later years. The bill also attempts to create an incentive for drivers to purchase cars with safety airbags, by placing a $300 excise tax on automobiles manufactured without safety airbags. I am sure that the Subcommittee will give careful attention to the important issues raised by Senator Danforth's innovative proposal to use the Internal Revenue Code to save lives.

One question, of course, is whether drivers who are already in the practice of using automobile seat belts will be unfairly penalized for not having an airbag installed in their automobiles. Another concern is whether airbags have actually been shown to be foolproof safety devices. Some drivers will be concerned that airbags might not operate properly in an accident, or that airbags might misfire and actually be responsible for causing an accident.

Although the goals of Senator Danforth's bill cannot be faulted, the financial aspects of the bill cannot be ignored. The staff of the Joint Committee on Taxation has estimated that the bill would result in an estimated annual revenue loss of $2 billion once the manufacturers have fully geared up for production of airbags. In addition, there are aspects of the bill that will affect international trade. I look forward to studying the testimony of our distinguished witnesses on the important human and economic issues raised by the Senator's bill.

Senator **Packwood**. The meeting will please come to order.

I will ask the witnesses to adhere to the time limits as notified by the committee, although we do have a film that will exceed the limit slightly. All of your statements will be included in the hearing record.

Senator Danforth will be here in a moment. I have got to give him great commendation. He has followed the issue of airbags very closely in the Commerce Committee, as the chairman of the Surface Transportation Subcommittee, and he has a great interest in it. It was his idea to use the device of the tax credit to give us a chance to have a hearing.

[Opening statement of Senator Danforth follows:]

SENATE COMMITTEE ON FINANCE

SUBCOMMITTEE ON TAXATION AND DEBT MANAGEMENT
HEARING ON S. 1887

JANUARY 28, 1982

OPENING STATEMENT OF SENATOR JOHN C. DANFORTH

Millions of Americans know about the twin tragedies which occurred here in Washington on January 13. The crash of Air Florida Flight 90 on the 14th Street bridge killed 78 people. The derailment of a subway train killed 3 others. Americans, because they value human life, react with horror at such catastrophic events. Yet very few people in this country realize that nearly twice as many Americans die in automobile accidents every single day as perished in both of those transportation accidents. According to the National Safety Council, almost 52,000 Americans were killed in automobile accidents in 1981. In other words, nearly as many Americans died in car accidents last year alone as were killed in Vietnam during the entire duration of American involvement in the war.

Because of the rising use of small, light automobiles like those popularized in the United States by Japanese manufacturers, the National Highway Traffic Safety Administration projects that the annual body count will rise to 70,000 by 1990. Last year, over two million people suffered disabling injuries on the nation's highways and that terrifying figure is also expected to increase dramatically.

The words "American" and "know-how" are often said in the same breath. Technology has played a major role in making this country great. Technology brought us the automobile, which in turn has given Americans freedom and mobility enjoyed by practically no other people

IN THE WORLD. AUTOMOTIVE TECHNOLOGY HAS ALSO BROUGHT US LIFE-SAVING INNOVATIONS. MANY DESIGN IMPROVEMENTS HAVE ALREADY BEEN INCORPORATED INTO THE CARS AMERICANS DRIVE TODAY. THE INSURANCE INSTITUTE FOR HIGHWAY SAFETY HAS ESTIMATED THAT FEDERAL SAFETY REGULATIONS, LIKE THOSE REQUIRING ENERGY-ABSORBING STEERING COLUMNS AND SAFETY GLASS, PRESENTLY SAVE 10,000 LIVES EACH YEAR. HOWEVER, THE DEVICE WITH THE GREATEST LIFE-SAVING POTENTIAL, THE AUTOMATICALLY-INFLATING AIR BAG, IS NOT YET AVAILABLE TO AMERICAN CAR BUYERS--NOT EVEN AS AN OPTION. MERCEDES-BENZ, WHICH HAS TOUTED THE AIR BAG AS "AN IDEA WHOSE TIME HAS COME," INSTALLS AIR BAGS IN CARS IT SELLS TO ITS CUSTOMERS IN WESTERN EUROPE. THIS INVENTION, WHICH HAS BEEN DESCRIBED AS CAPABLE OF OVER-SHADOWING THE SALK POLIO VACCINE, PROMISES TO SAVE OVER 9,000 LIVES EACH YEAR AND PREVENT OVER 60,000 DISABLING INJURIES ANNUALLY, ACCORDING TO STUDIES BY THE DEPARTMENT OF TRANSPORTATION.

IN 1977, SECRETARY OF TRANSPORTATION BROCK ADAMS, TESTIFYING AT SENATE HEARINGS, REMINDED THE CONGRESS THAT AIR BAGS HAD BEEN AVAILABLE SINCE 1969. ADAMS POINTED OUT THAT THE UNITED STATES HAD SPENT MILLIONS OF DOLLARS ON RESEARCH AND DEVELOPMENT AND HAD PUT AIR BAGS THROUGH 500 MILLION MILES OF ROAD OPERATION. THE SECRETARY URGED THAT IT WAS TIME TO MOVE AHEAD WITH AN IMPLEMENTATION PHASE. THE AIR BAG HAS BEEN SUBJECTED TO EXACTING SCRUTINY BY OFFICIALS IN THE ADMINISTRATIONS OF PRESIDENTS' NIXON, FORD AND CARTER. THREE SECRETARIES OF TRANSPORTATION--JOHN VOLPE, WILLIAM COLEMAN, AND BROCK ADAMS--AND FOUR TOP AUTO SAFETY CHIEFS--WILLIAM HADDON, DOUGLAS TOMS, JAMES GREGORY AND JOAN CLAYBROOK--HAVE FOUGHT TO SEE PASSIVE RESTRAINTS MADE A PART OF BASIC AUTOMOBILE SAFETY FOR ALL AMERICANS. THE PRESENT ADMINISTRATION, HOWEVER, FIRST POSTPONED THE IMPLEMENTATION OF THE PASSIVE RESTRAINT RULE AND THEN KILLED IT, CLAIMING THAT IT WAS NOT "COST-EFFECTIVE." THE NATION'S INSURANCE COMPANIES REACTED BY FILING

AN UNPRECEDENTED LAWSUIT, CHALLENGING THE DECISION AS "ARBITRARY AND CAPRICIOUS."

AS CHAIRMAN OF THE SENATE'S TRANSPORTATION SUBCOMMITTEE, I URGED MR. RAYMOND PECK, ADMINISTRATOR OF THE NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, NOT TO RESCIND THE AUTOMATIC CRASH PROTECTION STANDARD. OTHER CONGRESSIONAL COLLEAGUES, INCLUDING THE DISTINGUISHED CHAIRMAN OF THE SENATE COMMERCE COMMITTEE, MR. PACKWOOD, EXPRESSED CONFIDENCE THAT FEDERAL MOTOR VEHICLE SAFETY STANDARD 208 WOULD SAVE THOUSANDS OF LIVES AND PREVENT TENS OF THOUSANDS OF DISABLING INJURIES. I CONTINUE TO BELIEVE THAT THE AUTOMATIC CRASH PROTECTION STANDARD WAS CONSISTENT WITH CONGRESS' INTENT IN PASSING THE NATIONAL TRAFFIC AND MOTOR VEHICLE SAFETY ACT OF 1966. SECRETARY ADAMS WAS CORRECT WHEN HE SAID FIVE YEARS AGO THAT THE TIME FOR IMPLEMENTATION HAD ARRIVED.

IMMEDIATELY AFTER THE RESCISSION WAS ANNOUNCED, I INTRODUCED LEGISLATION TO OVERTURN MR. PECK'S DECISION. I HEARD TWO FUNDAMENTAL OBJECTIONS TO THE REINSTATEMENT OF THE FEDERAL MOTOR VEHICLE SAFETY STANDARD 208. THE FIRST WAS THAT THE DOMESTIC AUTOMOBILE MANUFACTURERS WERE SIMPLY NOT IN AN ECONOMIC POSITION TO BEAR THE CAPITAL COSTS OF PRODUCING AIR BAG CARS. THE SECOND WAS THAT CAR BUYERS WHO BUCKLE UP OUGHT TO BE FREE TO CHOOSE THE LESS EXPENSIVE MANUAL SEAT BELTS.

IN AN EFFORT TO FIND SOME COMMON GROUND IN THE DISPUTE OVER THE AUTOMATIC CRASH PROTECTION STANDARD, I DECIDED--FOR THE TIME BEING--NOT TO PURSUE REINSTATEMENT. INSTEAD, I OFFERED LEGISLATION WHICH I BELIEVE MEETS THE TWO BASIC OBJECTIONS TO THE FEDERAL MOTOR VEHICLE SAFETY STANDARD 208. ALTHOUGH THE SUBCOMMITTEE REQUESTED TESTIMONY FROM MR. PECK, THE FEDERAL GOVERNMENT'S AUTO SAFETY CHIEF ASKED TO BE

EXCUSED FROM APPEARING TODAY. WE HAVE BEEN TOLD THAT MR. PECK IS ENGAGED IN CERTAIN PRIVATE DISCUSSIONS WITH AUTOMOBILE MANUFACTURERS AND THAT HE WILL BE PREPARED TO REVEAL THE RESULTS OF THESE DISCUSSIONS--AND TO STATE THE ADMINISTRATION'S POSITION ON S. 1887--AT A SECOND SESSION OF THIS HEARING, WHICH CHAIRMAN PACKWOOD HAS AGREED TO SCHEDULE EARLY IN MARCH.

MY BILL, S. 1887, IS BASED ON A SIMPLE NOTION. THE FEDERAL GOVERNMENT, THROUGH SOCIAL WELFARE PROGRAMS AND EMPLOYEE BENEFITS, BEARS $6 BILLION OF THE ANNUAL COSTS OF AUTOMOBILE ACCIDENTS. ACCORDING TO THE NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, THE GOVERNMENT WOULD AVOID $3.8 BILLION OF THOSE COSTS EVERY YEAR IF AIR BAGS WERE BEING USED. S. 1887 WOULD PRODUCE NET SAVINGS FOR THE GOVERNMENT WITHOUT REQUIRING ANYONE TO PURCHASE A CRASH-PROTECTION SYSTEM HE DID NOT WANT. BY USING THE TAX SYSTEM TO ENCOURAGE THE USE OF AIR BAGS, EVERYONE CAN BENEFIT. AUTOMOBILE MANUFACTURERS WOULD NOT BEAR THE BRUNT OF ADDITIONAL CAPITAL COSTS. CAR BUYERS COULD GET MORE EFFECTIVE, COMFORTABLE CRASH PROTECTION AT NO ADDITIONAL COST. IN FACT, ACCORDING TO THE NATION'S TOP INSURANCE EXECUTIVES, CAR BUYERS WOULD REALIZE CONSIDERABLE SAVINGS THROUGH REDUCTIONS IN THEIR INSURANCE PREMIUMS. AND EVEN IF THE GOVERNMENT WERE TO BUY ENOUGH AIR BAGS TO EQUIP ALL THE CARS MADE IN AMERICA, THE TAXPAYERS COULD REALIZE A NET SAVINGS OF OVER $1.2 BILLION PER YEAR THROUGH SMALLER OUTLAYS FOR MEDICARE, MEDICAID AND OTHER SOCIAL PROGRAMS. WE HAVE A RARE OPPORTUNITY TO REDUCE SPENDING FOR SOCIAL PROGRAMS BY REDUCING PEOPLE'S NEED FOR GOVERNMENT HELP.

WHEN I SOUGHT THE ADMINISTRATION'S SUPPORT FOR THIS APPROACH, I DISCOVERED THAT THERE WAS ONE ADDITIONAL HURDLE TO OVERCOME: THE NOTION THAT IT IS SOMEHOW ORWELLIAN FOR THE FEDERAL GOVERNMENT TO TRY

TO ENCOURAGE PEOPLE TO PROTECT THEMSELVES FROM BODILY HARM. THERE ARE THOSE WHO BELIEVE THAT AMERICANS HAVE A RIGHT TO BE MANGLED, TO HAVE THEIR FACES SMASHED, THEIR CHILDREN DISFIGURED, AND THEIR RIBS BROKEN. I UTTERLY REJECT THIS INHUMANE NOTION. COLUMNIST GEORGE WILL, WHO IS HARDLY AN ADVOCATE OF INTRUSIVE GOVERNMENT, PUT IT WELL WHEN HE DISMISSED THIS ARGUMENT AGAINST AIR BAGS BY SAYING: "THERE IS A PITILESS ABSTRACTNESS, AND DISRESPECT FOR LIFE, IN SUCH DOGMATIC RESPECT FOR THE RIGHT OF CONSENTING ADULTS TO BEHAVE IN WAYS DISASTROUS TO THEMSELVES."

THE FEDERAL GOVERNMENT'S ROLE IN ADVANCING THE CAUSE OF AUTOMOBILE SAFETY IS LEGITIMATE AND WELL ESTABLISHED. CONGRESS ASSERTED A ROLE FOR THE NATIONAL GOVERNMENT BY PASSING THE NATIONAL TRAFFIC AND MOTOR VEHICLE SAFETY ACT OF 1966. TO ENCOURAGE THE USE OF THE BEST AVAILABLE SAFETY TECHNOLOGY--THE AIR BAG--BY REALLOCATING THE COSTS OF ACCIDENTS THROUGH THE USE OF THE TAX SYSTEM, IS SENSIBLE PUBLIC POLICY.

AS I INDICATED WHEN I INTRODUCED S. 1887, I AM NOT WEDDED TO A SINGLE WORD OF THIS BILL. I AM, HOWEVER, COMMITTED TO THE PASSAGE OF LEGISLATION WHICH WILL MAKE THIS LONG OVERDUE SAFETY TECHNOLOGY WIDELY AVAILABLE IN THE U.S. WE WILL HEAR THIS MORNING FROM A NUMBER OF WITNESSES WHO HAVE DEALT WITH THIS ISSUE FOR A LONG, LONG TIME. THIS IS THE FIFTH CONGRESSIONAL HEARING ON THE SUBJECT OF AUTOMATIC CRASH PROTECTION, AND SOME OF THIS MORNING'S WITNESSES HAVE APPEARED AT SEVERAL OF THESE HEARINGS. I LOOK FORWARD TO HAVING THE BENEFIT OF THEIR IDEAS AND EXPERIENCE.

Our first witness today will be Dr. William Haddon, the president of the Insurance Institute for Highway Safety.

Doctor, when you are ready to show the film, I will ask the television cameraman to turn off his lights.

STATEMENT OF WILLIAM HADDON, JR., M.D., PRESIDENT, INSURANCE INSTITUTE FOR HIGHWAY SAFETY, WASHINGTON, D.C.

Dr. **HADDON**. Mr. Chairman, I am William Haddon, Jr., M.D., president of the Insurance Institute for Highway Safety, which is a nonprofit public service research and communications group supported by most of the Nation's motor vehicle insurance companies. I am here as a result of Senator Danforth's request to the institute to request time to appear to show our new film, "Faces in Crashes."

Before we begin the film, I would like to point out that the statement that more than 50,000 people are killed each year has become something of a cliché for years in this country. What this really means is that more than 50,000 Americans each year are literally torn, crushed, and lacerated to death in split seconds.

I think that if instead of in split seconds these killings took place in each case over a period of weeks, it would be appallingly obvious that we don't need to tolerate this. There are many things, including specifically providing better crash packaging, the subject of the film, that would greatly reduce the numbers of these people being killed, being torn to pieces, crushed, and lacerated.

I also note that there are literally hundreds of thousands of others who survive after various degrees of crippling, maiming, and scarring in the same kind of crashes that kill other people, other Americans.

So without further ado, let us look at this film which spells some of this out, I think, in great detail, and stretches some of these events out in time, so that you can better see exactly what an appalling situation we are dealing with.

If we could have the lights out, please, and then the film.

[The film was shown.]

Dr. **HADDON**. Mr. Chairman, we are submitting a copy of the film to the committee, with your permission, for the hearing record.

Senator **PACKWOOD**. Doctor, we would welcome it. It is an unusual addition to the record. I can assure you that others will see it.

Dr. **HADDON**. Thank you.

We are also submitting a copy of the script of the film, also with your permission, for the record.

[Script of film follows:]

"FACES IN CRASHES"

Director/Narrator	Ben Kelley
Producer	Pini Kalnite
Editor	Deborah Wallach
Cinematographer	Paul Kocela
Sound	Paul Rusnak

Faces In Crashes
1981 Copyright
Insurance Institute for Highway Safety

10 minute.......color.......narrated

Available in 16mm, 3/4" videotape, and 35mm (for theatrical use).

For information about loan or purchase of the film, contact the Communications Department, Insurance Institute for Highway Safety, Watergate 600, Washington, D.C. 20037 (202-333-0770).

For further information about the motor vehicle safety issues and highway loss reduction technologies discussed in the film, see attached notes.

PICTURE	SOUND
First Woman	FIRST WOMAN: ONE TIME I DID WAKE UP RIGHT AFTER THE ACCIDENT, AND I JUST VAGUELY REMEMBER LOOKING INTO THE MIRROR, THE REAR VIEW MIRROR, AND PULLING MY NOSE UP ON THE SIDE. AND THAT'S ALL I REALLY REMEMBER, BUT THIS WAS COMPLETELY CUT OFF EXCEPT FOR THIS LITTLE AREA RIGHT THROUGH THERE.
Title: "FACES IN CRASHES" © 1981 Insurance Institute for Highway Safety	(Silent)
Man	MAN: THEN I LOOKED INTO THE MIRROR; I DISCOVERED THAT I WAS TWICE THE NORMAL SIZE ON THIS SIDE. I HAD BLUE AND YELLOW MARKS AND I WAS SWOLLEN AND THERE WERE STITCHES ALL OVER, AND IT WAS ... PRETTY HARD TO LIVE WITH, NOT KNOWING IF YOUR FACE WAS EVER GOING TO LOOK THE SAME, AND ... THE PAIN.
Title: "AN INSURANCE INSTITUTE FOR HIGHWAY FILM"	(Silent)

PICTURE	SOUND
Second Woman	SECOND WOMAN: THE DAMAGE FROM THE WRECK WAS MAINLY ON MY FACE. IT GAVE ME A FRACTURE ABOVE MY EYE, WHERE I HIT THE STEERING WHEEL AND CRUSHED MY WHOLE CHEEKBONE AROUND LIKE THIS, LIKE GRAVEL. ALSO, THE ORBITAL FLOOR THAT HOLDS YOUR EYEBALL UP WAS CRUSHED, LIKE GRAVEL. MY TOOTH WAS KNOCKED OUT. AND, MY COLLAR BONE WAS FRACTURED AND MY JAW WAS BROKEN IN THREE PLACES.
Title: "DIRECTED AND NARRATED BY BEN KELLEY"	(Silent)
Shots of junkyard, gradually closing on close-ups of shattered windshields	NARRATOR: FACIAL INJURIES IN CAR CRASHES HAVE GIVEN PHYSICAL PAIN AND PSYCHOLOGICAL SUFFERING TO MILLIONS OF AMERICAN ADULTS AND CHILDREN. OFTEN THE CRASHES THEMSELVES ARE UNAVOIDABLE. BUT WHAT ABOUT THE INJURIES? CAN THEY BE AVOIDED? FOR THE NEXT FEW MINUTES, WE'LL LOOK AT THE FACIAL INJURY PROBLEM THROUGH THE EYES OF PEOPLE WHO HAVE HAD THEIR FACES HURT IN CAR CRASHES. AND FROM RESEARCH EXPERTS, WE'LL HEAR WHY IT DOESN'T HAVE TO BE THAT WAY.

PICTURE	SOUND
Brian O'Neill, highway loss researcher	O'NEILL: WHEN WE LOOKED AT WHAT THE CAUSES OF FACIAL INJURIES WERE IN THE UNITED STATES, WE DISCOVERED, NOT SURPRISINGLY, THAT THE MOTOR VEHICLE WAS BY FAR THE LEADING CAUSE, AND IN FACT WE HAVE SOME OF THE DATA HERE. IT SHOWS QUITE CLEARLY THAT IT IS THE MOTOR VEHICLE CRASH THAT IS THE LEADING CAUSE OF FACIAL INJURIES IN THIS COUNTRY.
Slow-motion view of an unrestrained female adult dummy in the front right passenger seat of a car in a frontal crash at 23 MPH. Dummy impacts instrument panel and windshield	O'NEILL: AND IN PARTICULAR, WHEN WE LOOK AT VERY SERIOUS FACIAL INJURIES, THE VERY SERIOUS LACERATIONS AND FRACTURES OF THE FACE ARE COMING PREDOMINANTLY FROM THE MOTOR VEHICLE CRASH,...
Slow-motion view of an unrestrained female dummy in the driver's seat in a frontal car crash at 21 MPH. Dummy impacts steering wheel	...AND PREDOMINANTLY, FROM THE FRONTAL CRASH -- IMPACTS WITH STEERING COLUMNS, WINDSHIELDS, AND DASHBOARDS.
	SECOND WOMAN: MY FACE HIT THE STEERING WHEEL AND GAVE ME BROKEN BONES AND MY WINDOW...
Second Woman	...WAS HALF CLOSED AND IT SHATTERED, AND IT GAVE ME A LOT OF LACERATIONS ON MY CHEEK AND A LITTLE BIT ON MY HEAD.
William Haddon, Jr., M.D.	HADDON: AMERICANS SUSTAIN OVER A QUARTER MILLION FACIAL LACERATIONS EACH YEAR IN MOTOR VEHICLES. THEY ALSO HAVE ABOUT 25,000 SEVERE FACIAL FRACTURES (1).

PICTURE	SOUND
Slow-motion view of an unrestrained female adult driver dummy impacting the steering wheel in a frontal car crash at 21 MPH.	HADDON: WHEN A CAR CRASHES, THE PEOPLE INSIDE KEEP ON MOVING FORWARD AT THE SAME SPEED THEY WERE MOVING BEFORE THE IMPACT. IN THE CASE OF DRIVERS, THEY USUALLY SMASH THEIR FACES INTO THE STEERING WHEEL AND OFTEN, THE FACIAL BONES ARE DEEPLY CRUSHED.
	FIRST WOMAN: THE STEERING WHEEL WAS COMPLETELY DEMOLISHED, SO I BELIEVE THAT'S WHAT I HIT...
First Woman	...I KNOW I DIDN'T HIT THE WINDSHIELD; MY HUSBAND HIT THAT.
Real time and slow motion views of an unrestrained female adult passenger dummy impacting the instrument panel and windshield in a frontal car crash at 23 MPH	HADDON: IN THE CASE OF THE PASSENGERS, THEY GO USUALLY STRAIGHT INTO THE WINDSHIELD, WHICH IS SORT OF LIKE GOING INTO A NEST OF RAZOR BLADES THAT HORRIBLY LACERATE THE FACE, OFTEN PEEL IT OPEN AND MAKE IT IMPOSSIBLE, IN MANY CASES, TO RECONSTRUCT WITHOUT EXTREME SCARRING. THESE MANY KINDS OF INJURIES IN MOTOR VEHICLE CRASHES...
Haddon	...TIE UP ALL SORTS OF MEDICAL PERSONNEL THAT COULD BE BETTER USED FOR OTHER THINGS, TIE UP HOSPITAL BEDS, SURGEONS, AND INVOLVE GREAT EXPENSE.

PICTURE	SOUND
Second Woman	SECOND WOMAN: SO, I HAD TO HAVE MY TEETH WIRED TOGETHER FOR SIX WEEKS, AND I'VE GONE THROUGH ABOUT FIVE OR SIX MORE OPERATIONS SINCE THEN.
Slow motion view of an unrestrained female adult passenger dummy impacting the windshield in a front-into-barrier car crash at 5 MPH	NARRATOR: MOST FACIAL INJURIES ARE HAPPENING IN CRASHES AT THIRTY MILES AN HOUR CAN BE ENOUGH TO THROW THE THE HEAD AND FACE OF AN UNBELTED PASSENGER INTO THE WINDSHIELD.
	HADDON: PASSENGERS ALSO OF COURSE HIT...
Haddon	...THE INSTRUMENT PANEL AND ALL OF THE SHARP JUNK THAT IS PUT THERE FOR DECORATIVE PURPOSES.
Slow-motion view of an unrestrained infant dummy on sedan front seat impacting the instrument panel in a 25 MPH front-into-barrier car crash	AND BECAUSE OF POOR DESIGN, INSTEAD OF SMOOTH AND RELATIVELY SOFT SURFACES...
Slow-motion view of an unrestrained 3-year-old male dummy in a van, in a 24 MPH front-into-barrier crash impacting the instrument panel and steering column areas	...CHILDREN ARE OFTEN THROWN BEHIND THE RIGHT SIDE OF THE STEERING WHEEL WITH ALL OF THAT ARRAY OF SHARP EDGES AND KNOBS AND THINGS THAT THEY WOULDN'T WANT TO HIT.
Brian O'Neill	O'NEILL: IT'S INTERESTING TO REALIZE THAT THE WINDSHIELD WAS ONE OF THE FIRST FEATURES OF THE AUTOMOBILE THAT WAS RECOGNIZED AS AN INJURY-PRODUCING AGENT...

PICTURE	SOUND
Old black and white news photos of crashes of earlier-model cars, with close-ups of shattered windshields and occupants with facial injuries	O'NEILL: THE ORIGINAL WINDSHIELDS ON THE VERY EARLY CARS WERE REGULAR PLATE GLASS AND THEY USED TO PRODUCE VERY, VERY BAD LACERATIONS, OFTEN FATAL LACERATIONS. SINCE THAT TIME, WINDSHIELDS HAVE IMPROVED TREMENDOUSLY.
Animation showing design of standard laminated windshield	NARRATOR: ALL CARS CURRENTLY SOLD IN AMERICA ARE REQUIRED TO BE EQUIPPED WITH LAMINATED WINDSHIELDS, IN WHICH A SHEET OF PLASTIC IS SANDWICHED BETWEEN OUTER AND INNER LAYERS OF GLASS.
Crash tests demonstrating performance of standard laminated windshields in facial impacts	IN A CRASH, THE GLASS ADHERES TO THE PLASTIC, MEANING LESS LIKELIHOOD OF A JAGGED HOLE WITH EDGES THAT CAN SLASH FACES AND NECKS. BUT THE CURRENT DESIGNS STILL ALLOW FACES TO CONTACT GLASS, RESULTING IN EXTENSIVE FACIAL LACERATIONS FOR ADULTS AND CHILDREN IN FRONTAL COLLISIONS.
Animation showing design of French "Securiflex" windshield	A FRENCH WINDSHIELD DESIGN, NOW AVAILABLE ON SOME CARS IN EUROPE, HANDLES THE PROBLEM BY ADDING AN INNER LAYER OF PLASTIC, WHICH ACTS AS A PROTECTIVE BARRIER IN FACIAL IMPACTS (2).
Crash tests of "Securiflex" windshields	SINCE THERE IS LITTLE OR NO FACIAL CONTACT WITH BROKEN GLASS EVEN IN HIGHER-SPEEDS IMPACTS, THE POSSIBILITY OF LACERATING INJURIES IS SUBSTANTIALLY REDUCED.

PICTURE	SOUND
First Woman	FIRST WOMAN: WE PROBABLY WOULD HAVE COME OUT OF THE ACCIDENT A LITTLE BETTER IF WE HAD HAD OUR SEAT BELTS ON, I DON'T KNOW PERSONALLY WHETHER WE WOULD HAVE, BUT AS FAR AS MY NOSE, I MAY NOT HAVE HIT THE STEERING WHEEL IF THAT WERE THE CASE.
Slow-motion view of an adult male passenger dummy wearing a lap-shoulder belt in a frontal car crash at 24 MPH. No impact with the instrument panel or windshield	NARRATOR: SAFETY BELTS DO MAKE A DIFFERENCE (3). FOR PASSENGERS, BELTS REDUCE THE LIKELIHOOD OF CONTACT WITH THE WINDSHIELD AND INSTRUMENT PANEL, THUS REDUCING THE CHANCE OF LACERATIONS AND FRACTURES TO THE FACE.
Slow-motion view of a restrained adult female dummy driver in a frontal car crash at 22 MPH. Dummy does not impact the steering column	FOR DRIVERS, BELTS CAN PREVENT OR AT LEAST SOFTEN FACIAL IMPACTS WITH STEERING WHEELS.
Slow-motion view of an unrestrained 3-year-old male dummy in the passenger right front seat in a front-into-barrier car crash test at 24 MPH. Dummy impacts the windshield	UNRESTRAINED CHILDREN ACCOUNT FOR AN IMPORTANT PIECE OF THE FACIAL INJURY PROBLEM (4).
Slow-motion view of a restrained 3-year-old in passenger right front seat in a front-into-barrier car crash test at 25 MPH. The dummy is prevented from impacting the instrument panel and windshield	CHILDREN CAN BE PROTECTED AGAINST SUCH INJURIES BY SAFETY BELTS,...

PICTURE	SOUND
Slow-motion view of a restrained 3-year old male dummy in the center rear seat of a car in a 25 MPH front-into-barrier crash test. The dummy does not impact the front seat	NARRATOR: BY BEING PLACED IN THE REAR SEAT WHERE THEY ARE SEPARATED FROM THE WINDSHIELD AND INSTRUMENT PANEL, AND BY SPECIALLY DESIGNED CHILD AND INFANT RESTRAINT SYSTEMS THAT ARE HELD IN PLACE BY SAFETY BELTS (5).
Slow-motion shot of a restrained female dummy driver in a frontal crash at 34 MPH. Her face impacts the steering wheel	UNFORTUNATELY, IN CRASHES AT HIGHER SPEEDS, EVEN BELTED OCCUPANTS CAN HAVE THEIR FACES HURT, SOMETIMES SEVERELY.
	MOTHER: AS WE APPROACHED THE INTERSECTION, I REALIZED THAT WE WERE GOING TO HAVE AN ACCIDENT.
Mother	IMMEDIATELY AFTER THE COLLISION, OF COURSE THE FIRST THOUGHT WAS 'OH, WE'RE ALIVE, THANK GOD WE WERE WEARING OUR SEAT BELTS. WE'RE ALIVE.' BUT THEN, MARCIA BEGAN SCREAMING THAT SHE COULDN'T SEE,
Post-crash photo of daughter with severe facial laceration	AND WHEN WE WERE TAKEN OUT OF THE CAR SHE TURNED TOWARD ME, ALL I COULD SEE WAS AN ENORMOUS MASS OF FLESH AND BLEEDING. MARCIA'S STILL A PRETTY CHILD:
Mother	BUT, SHE'S A PRETTY CHILD WITH A VERY LARGE SCAR ON HER FACE.
Brian O'Neill	O'NEILL: HITTING A WINDSHIELD IS NOT THE IDEAL THING TO HAPPEN TO A FACE. IDEALLY, WE SHOULD PREVENT THE FACE FROM HITTING ANYTHING AT ALL...

PICTURE	SOUND
Slow-motion footage of a 1975 Volvo with an air bag at 36 MPH. Both front seat dummy occupants are protected from impacting the instrument panel and the windshield	O'NEILL: ONE WAY TO DO THIS IS WITH THE AIR BAG. NARRATOR: THE AIR BAG, A TECHNOLOGY DEVELOPED BY AMERICAN CAR COMPANIES AND SUPPLIERS, AND CURRENTLY BEING SOLD ON SOME CARS IN EUROPE, ACTS AS AN INSTANT CRASH CUSHION IN SERIOUS FRONTAL IMPACTS. IT AUTOMATICALLY SHIELDS THE FACES OF DRIVERS AND FRONT SEAT PASSENGERS...
Slow-motion view of a 1975 Oldsmobile with an air bag at 37 MPH in a frontal crash. Neither front seat dummy occupants impacts the steering column or instrument panel	...FROM CONTACTING WINDSHIELDS, STEERING WHEELS, AND INSTRUMENT PANELS, WHETHER OR NOT THEY'RE WEARING SAFETY BELTS (6). COMPANIES MANUFACTURING AIR BAG SYSTEMS REPORT THAT IN MASS PRODUCTION, THEY WOULD ADD LESS THAN THE COST OF OPTIONAL POWER WINDOWS TO THE PRICE OF THE AVERAGE NEW CAR (7).
Real time and slow-motion footage of an unrestrained adult male dummy with an air bag in a frontal car crash at 30 MPH. The dummy is safely restrained from contact with the steering column	TODAY'S SMALLER CARS OFFER LESS PROTECTION THAN LARGER ONES IN CRASHES (8), SO THE NEED FOR AIR BAGS IS GROWING EVEN GREATER.
Post-crash scenes of occupant dummies in a 1975 Oldsmobile without air bags. Closeup shows the facial injuries suffered by the passenger dummy after it impacted the windshield	HADDON: UNFORTUNATELY, MUCH OF THE TECHNOLOGY THAT WOULD PREVENT THESE LACERATIONS AND FRACTURES...
Haddon	...REMAINS ON THE SHELF, AND IS NOT BEING APPLIED BY MOTOR VEHICLE MANUFACTURERS. THIS IS A TRAGEDY FOR ALL AMERICANS AND WILL CONTINUE TO BE SO UNTIL THAT TECHNOLOGY IS IN PLACE.

PICTURE	SOUND
Repris of crash tests showing a safety belted front seat passenger, a "Securiflex" windshield and an air bag	NARRATOR: SAFETY BELTS AND CHILD RESTRAINTS, WHEN USED, CAN HELP TO PROTECT FACES IN CRASHES. WINDSHIELDS AND INSTRUMENT PANELS CAN BE DESIGNED MUCH MORE HUMANELY SO AS TO HURT FACES AS LITTLE AS POSSIBLE IN IMPACTS. AND FINALLY, AIR BAGS CAN CUSHION FACES AND SEPARATE THEM FROM DANGEROUS CONTACT EVEN IN MORE VIOLENT CRASHES.
Junkyard with close-up shots of shattered car windshields	FOR PEOPLE WHO WILL BE IN CRASHES IN THE FUTURE, THAT'S CRITICALLY IMPORTANT INFORMATION--AS PEOPLE WHO HAVE ALREADY HAD THEIR FACES HURT IN CRASHES KNOW SO WELL.
	SECOND WOMAN: I'VE BEEN HAMPERED. I'M ALWAYS ... CONSCIOUS ABOUT HOW I LOOK. I FEEL LIKE ... I JUST LIKE THE WAY I LOOKED BEFORE BETTER.
Credits	

1. Recent research supported by the Insurance Institute for Highway Safety, and conducted by a researcher at the University of Wisconsin, found that about 114,000 severe facial lacerations and 25,000 severe facial fractures are associated every year in the United States with the use of motor vehicles. Considering all severities of injuries, it was estimated that Americans sustain about 266,000 facial lacerations and about 52,000 facial fractures annually from motor vehicle crashes. (See Insurance Institute for Highway Safety, Status Report,* Vol. 16, No. 4.)

2. The French "Securiflex" windshield design which can substantially reduce facial injuries in crashes is already on thousands of cars in Europe, and was used in the U.S. Department of Transportation's Research Safety Vehicle program. However, because of a technicality, the present federal regulation covering vehicle windshields in this country does not permit new cars to be equipped with the French windshield design. In 1980, the Insurance Institute for Highway Safety asked the U.S. Department of Transportation to permit use of the new windshield. More recently, the Institute unsuccessfully requested the Department to deregulate the portion of the standard which is blocking the introduction of the superior windshield technology in this country. Subsequently, the Department initiated regulatory action which may eventually have the result of allowing the use of Securiflex windshields in the United States. (See Insurance Institute for Highway Safety, Status Report, Vol. 15, No. 13; Vol. 16, Nos. 2, 6, and 12.)

3. In crashes, seat belts help save lives by keeping people inside their cars, and by preventing or reducing the violence of their collisions with the vehicle's interior. Lap and shoulder belts, when worn, reduce the chances of being killed or seriously injured in a crash by about 50 percent.

   However, seat belts work only if they are used, and about 90 percent of all U.S. motorists still are unrestrained. A variety of media and related educational campaigns have been carried out to try to increase the number of people who voluntarily use their seat belts.

---

*Status Report is the Insurance Institute for Highway Safety's biweekly newsletter. To obtain copies, including back issues, contact the Communications Department, IIHS, Watergate 600, Washington, D.C. 20037.

Such campaigns generally have been unsuccessful. (See Insurance Institute for Highway Safety, Status Report, Vol. 16, No. 9.) Nor have attempts to pass state laws mandating belt use by adults been successful.

Belts that automatically position themselves around front seat occupants when they enter the car currently are available in only a small percentage of cars on the road, primarily Volkswagen Rabbits. The seat belt usage rate is about 80 percent in these cars, compared to only about 35 percent in Rabbits with manual belts. (See Opinion Research Corporation, Highlights of Four Research Studies, prepared for the U.S. Department of Transportation, ORC Study #51495, March 1980.) Most auto manufacturers generally have resisted both regulatory and marketplace efforts either to increase the availability of automatic belts, or to provide even minimal numbers of air bag-equipped cars to new car buyers.

4. Every year in the United States, more than 1,500 children under 13 years old die and thousands more are injured as motor vehicle passengers. Infants under one year of age have a higher death rate than older children. In spite of these facts, most children in the United States currently ride in motor vehicles without the protection of car seat belts or special child restraint systems. (See Insurance Institute for Highway Safety, Children in Crashes, June 1981).

   Since 1977, eleven states -- California, Kansas, Maine, Massachusetts, Michigan, Minnesota, New York, North Carolina, Rhode Island, Tennessee, and West Virginia -- have passed laws requiring or encouraging adult motorists to see that children riding in motor vehicles are restrained. (See Insurance Institute for Highway Safety, Status Report, Vol. 13, Nos. 5 and 7; Vol. 15, No. 8; Vol. 16, Nos. 6 and 10; and Vol. 17, No. 2.)

5. When properly used, child restraints meeting crash test requirements set by the federal government have provided "excellent" protection in actual, serious frontal crashes, a University of Michigan study supported by the Insurance Institute for Highway Safety concluded. Based on in-depth investigations of 16 serious crashes, the study said child restraints performed well in frontal impacts, the kind that account for over half of all motor vehicle fatalities. (See Insurance Institute for Highway Safety, Status Report, Vol. 15, No. 13.)

6. Air bag technology was perfected and ready for use more than a decade ago. In frontal crashes, air bags act as emergency crash padding by

instantly and automatically inflating to absorb and disperse crash forces which otherwise pose a much greater likelihood of injuring or killing human occupants. In more than 800 million miles of real world experience and hundreds of tests by auto makers, air bag producers, and research organizations, air bags have been shown to be highly effective in reducing crash injuries. The United States Department of Transportation's National Highway Traffic Safety Administration has estimated that 9,000 deaths and 65,000 serious injuries could be avoided every year if automatic restraints were in all cars on the road. (See Insurance Institute for Highway Safety, Status Report, Vol. 14, Nos. 13 and 14.)

Perhaps because air bags are unobtrusive (in fact, they are stored completely out of sight when not in use), consumers have repeatedly indicated their preference for -- and willingness to pay for -- this kind of automatic protection. Since the early 1970's at least 10 public opinion surveys conducted by government contractors, private polling agencies, and car companies have shown a tremendous potential for air bag sales to informed purchasers. (See Insurance Institute for Highway Safety, Status Report, Vol. 11, Nos. 13 and 16; Vol. 12, No. 13; Vol. 13, No. 13; Vol. 14, Nos. 3 and 18; Vol. 15, Nos. 2 and 12.)

U.S. auto manufacturers recently cancelled their plans to offer air bags in new cars. Mercedes Benz recently began making and selling cars with driver air bags, but these cars are not available for sale in the United States. (See Insurance Institute for Highway Safety, Status Report, Vol. 15, No. 5; Vol. 16, No. 17.) In fact, in 1980 Mercedes advertised air bags as "the best safety system in the world."

7. The Automobile Occupant Protection Association (AOPA), the organization representing manufacturers of air bag components, has given these figures to indicate the cost of air bag systems in new cars:

Annual Volume of Production	Price to Consumers
2,000,000 cars	$ 185
1,000,000 cars	240
500,000 cars	280
100,000 cars	500
10,000 cars	1100

Figures shown cover the entire air bag system, according to AOPA, including sensors, diagnostic systems, inflators, air bags, sheet metal housings, decorative covers, associated wiring, and labor --

plus a profit for both auto maker and dealer. (See Insurance Institute for Highway Safety, Status Report, Vol. 16, No. 8.)

8. Researchers have known for years that people in smaller, lighter cars are injured more often and more severely than occupants of larger, heavier cars. Small cars have less structure, mass, and size to absorb crash energy; as a result higher, more injurious forces can reach their occupants in crashes. Research recently conducted by the Insurance Institute for Highway Safety has found that deaths per registered vehicle in the smallest cars on the road -- subcompacts and small subcompacts -- are twice as high as in the largest cars. No matter what kind of crash, whether frontal, single-vehicle, rollover, ejection, car-to-car, or car-to-other-vehicle, the number of occupant deaths per registered small car is alarmingly high. (See Insurance Institute for Highway Safety, Status Report, Vol. 17, No. 1.)

THE AUTOMATIC ANSWER

VIDEO	AUDIO
	Each year some 50,000 people die in motor vehicle crashes ... thousands of them in frontal crashes like this one.
	But in 1977 the Department of Transportation and Congress took a step to save at least 9,000 lives each year.
	By the mid-1980's all cars must automatically provide increased protection for front seat occupants in 30-mile-per-hour frontal crashes.
IIHS CRASH FOOTAGE OF VOLVO WITHOUT AIR BAGS INTO A BARRIER AT 35 MPH.	In this frontal crash at 35 miles an hour, the unbelted dummy occupants of a Volvo fare very badly, as this Insurance Institute for Highway Safety film shows. Notice the driver's throat being wrenched by the steering wheel.
IIHS CRASH FOOTAGE OF VOLVO WITH AIR BAG INTO A BARRIER AT 36 mph.	But in this Volvo, the air bags provide emergency crash padding, deploying automatically only when needed in a crash.
	As the crash begins, sensors, located in the car's front, relay the information to the air bags which are stored out of sight in the steering wheel and under the dashboard.
	The bags inflate instantly, even before the front seat occupants start moving forward.
	Instead of crashing into the steering wheel or dashboard the dummies move into the large cushions which gently absorb the crash forces.

VIDEO	AUDIO .
HISTORICAL FOOTAGE OF EARLY DESIGNS OF AIR BAGS.	The concept of an air filled buffer to protect people in car crashes was outlined as early as 1941, and patents began to be issued in the 1950's.
CRASH TESTING OF ADVANCED AIR BAG SYSTEMS.	Extensive research in the 1960's and the early 70's, including crash testing with human volunteers as well as dummies, brought air bag technology to an advanced state, entirely ready for large scale practical application.
	During the 1970's General Motors, Ford and Volvo introduced air bags in over 12,000 cars.
STILL PHOTOS OF REAL WORLD AIR BAG CRASHES.	Those cars have now traveled more than 900 million miles and their air bags have provided automatic protection to occupants in more than 230 deployment crashes.
SILENT FOOTAGE OF ZOOM INTO DR. ARMS' OFFICE DOOR.	Dr. Arnold Arms experienced their effectiveness first hand ...
SOF ARMS/BELL INTERCUT WITH PHOTOS OF THEIR CRASHES.	(SOF Arms/Bell "... my family and myself.")
DOT INTERVIEW WITH JIMMY DANIELS.	
SOF/DANIELS	(SOF "... I will not feel safe without one.")
SILENT ALLSTATE FILM OF VIC RIVERS' AIR BAG CRASH INTO BARRIER.	No one is more concerned with safety than a professional stunt man. Vic Rivers, one of the best, tells about his experience with an air bag when he crashed a car into a concrete wall at 32 miles an hour, in the 20th Century Fox, Palo Alto Production film, "Moving Violation." (SOF ... than that one.")

VIDEO	AUDIO
SILENT FOOTAGE OF IIHS AIR BAG CRASH TEST.	Rivers isn't the only one in favor of automatic restraints. 73% of those polled in a recent government survey want air bags or automatic belts. Automatic restraints are there when you need them. As soon as they're standard equipment in all cars, the mounting highway death toll will drop dramatically.

Dr. **Haddon**. I would like to mention that I have, in addition, a 5-minute film which more specifically explains the working of airbags, and if we have the time, and it is your pleasure, I would like to show you that film.

Senator **Packwood**. Let's give another panel a chance while you are getting the film set up, and then we will have a chance to look at it before we are done. Can you stay?

Dr. **Haddon**. It is right on the same reel.

Senator **Packwood**. Good, then go right ahead.

Dr. **Haddon**. If we could have the lights out again.

[Film was shown.]

Dr. **Haddon**. Mr. Chairman, and members of the committee, I would be most happy to answer any questions you might have, and if not, that concludes my testimony.

Senator **Packwood**. Senator Danforth.

Senator **Danforth**. Thank you for holding the hearing.

I have a prepared statement which I would like to place in the record, with your permission.

Senator **Packwood**. It will appear at the start of the hearing record.

Senator **Danforth**. Doctor, I would just like to summarize some of the points in the statement, and ask wherein I am wrong in my reasoning.

It is my understanding that in 1981 some 52,000 Americans were killed in automobile accidents, and that with the advent of smaller automobiles that number is projected to go up to around 70,000. Is that roughly your understanding?

Dr. **Haddon**. That is certainly the expectation of many experts including those in the National Highway Traffic Safety Administration who have examined exactly that issue.

Senator **Danforth**. It is further my understanding that the projections are that if we had airbags there would be about 9,000 lives saved a year, and about 60,000 disabling injuries which would not occur.

Dr. **Haddon**. Yes, there have been various estimates, but whatever the answers are, it is absolutely clear that there would be thousands and thousands of fewer Americans killed, and probably hundreds of thousands less seriously injured as occupants of motor vehicles in crashes.

Senator **Danforth**. For those who say that Government really doesn't have any role to play in this, it is also true, isn't it, that the Government already is in the business of requiring various safety standards for automobiles relating to how windshields are made, and how steering columns are made, and so on?

Dr. **Haddon**. Yes; and in that respect there are many precedents that have served this country very well. For example, requirements for water purification at the source rather than saying that people have to boil it when they use it, milk pasteurization, and many others. These are large scale public health issues which, of course, affect literally all Americans.

Senator **Danforth**. We asked the National Highway Traffic Safety Administration to estimate the cost to the Government of these accidents.

A lot of people say, "What is the Government's interest in it? Isn't this sort of a bleeding heart, Big Brother operation?" So it seemed to me, and this was really the thrust of the bill that is now before us, to try to change the debate, and to talk about economic consequences. This is a year when we are all talking about budget. OK, let's talk about budget, let's talk about money, balancing the budget and costs to Uncle Sam.

Here is what I am told. The Federal Government through social welfare programs and employee benefits bears $6 billion of annual cost of automobile accidents—that is medicare, medicaid, disability insurance, and so on—$6 billion of annual cost of automobile accidents borne by Uncle Sam.

According to the National Highway Traffic Safety Administration, the Federal Government would avoid $3.8 billion of those costs every year if airbags were being used. So we are talking about a savings to the taxpayer of $3.8 billion.

The approach of this bill would be, all right, if the Government is going to save money, and if the automobile companies don't want to spend the money, and if they are in a weakened financial position, what would happen if the Government said, "OK, let us bear the cost." Even if the Government were to pick up the cost of installing the airbags, the estimated net savings to the taxpayer would be $1.2 billion a year.

So my argument is very simple. We have a chance to save considerable numbers of lives, considerable amounts of pain, suffering and agony for people who are injured and for their families, and at the same time to save the taxpayers money. I, for the life of me, can't understand why we don't just get on with it.

Do you understand?

Dr. HADDON. No, I don't.

Senator DANFORTH. Thank you, Mr. Chairman.

Senator PACKWOOD. Senator Byrd.

Senator BYRD. I was very impressed with the film, and I am glad I had the opportunity to see it.

It seems to me that those who want the opportunity to have airbags ought to have the opportunity to have airbags. I am not sure, despite what Senator Danforth said, just how the Federal Government gets involved in this. Should the Federal Government pay for the airbags; is that your contention?

Dr. HADDON. Mr. Byrd, we, as an institute, are not a lobbying organization and have a longstanding policy of not commenting specifically on legislation.

Senator PACKWOOD. Doctor, I can respond to that.

Under Senator Danforth's legislation, we will give a $300 tax credit for each airbag that is put into a car.

Senator BYRD. Who do you give it to?

Senator PACKWOOD. The manufacturer.

Senator BYRD. Why should the Federal Government give money to the manufacturer?

Senator PACKWOOD. I think you should ask Senator Danforth.

Senator BYRD. I am just asking for information. I am neither for it nor against it, I am just trying to understand why the Federal Government should pick up the tab for putting airbags in an automobile. I am not against airbags.

Senator **Danforth**. I don't think the doctor necessarily supports my bill. In fact, I have supported legislation in the past to simply mandate airbags.

Senator **Byrd**. That is a different proposition.

Senator **Danforth**. I think that it would be a good idea, and I would enlist your support for it.

Senator **Byrd**. I will keep an open mind on it.

Senator **Danforth**. But here is the point. The automobile manufacturers take the position that, first of all, nobody should be required to have airbags in their car. They should have the freedom to suffer. Second, there is a cost to airbags.

Senator **Byrd**. There is a cost to safety straps, too. Why don't we pay for those? There is a cost for good tires. Why don't we pay for those?

Senator **Danforth**. I would be happy to address the question.

They say that right now the U.S. automobile industry is in a very serious economic condition. There is a question as to whether or not Ford and Chrysler will survive. The added burden is just the straw that breaks the camel's back.

So in looking at this proposal, my reasoning was as follows. When airbags are installed, there are winners and there are losers, just as an economic proposition. The loser would be the automobile industry. They would have to have an additional cost at a time when they are in a very weakened condition. Who are the winners? The winners are the insurance industry. The Government also wins because the Government, if airbags were installed in automobiles, would come out in dollars and cents ahead of the game.

Therefore, if the airbag question is viewed not in human terms, which is what it should be viewed in, but if it is viewed in economic terms, and if the economic argument is the major argument against the airbag, can an approach to the airbag question be devised so, in essence, there aren't any losers, so that it is a net gain for everyone? I think that it is possible to work that out.

I think the result of this is, it is not as though Government is just engaged in a philosophical exercise. Government is losing money. Government is paying out money. Government is, in essence, paying out some $6 billion a year to compensate for people's injuries and I think that that is an expensive proposition. I would rather have us spend a smaller amount of money to prevent injury than a larger amount of money, as the Government, to cure injuries once they occur.

When we have gotten, from time to time, involved in the question of health care, and what can we do to stem the cost of health care to the Government, one of the most frequently made arguments is that instead of spending so much money on treatment, we should perhaps spend the money on prevention. If we could do that, and figure out a way to do it, the Government would end up doing better. This is a classic example of this. This would be to take the money, to spend a lesser amount of money on prevention, and to save the taxpayers some dollars.

Senator **Byrd**. I think you make a fine presentation, and I will keep an open mind on it. I am still not clear as to why the Government should be paying for certain additions to an automobile any more than it should for an automobile having excellent tires that don't blow out, or safety belts, or any number of safety mechanisms that are involved in an automobile.

I am glad to be present at this presentation, and I will certainly keep an open mind on the legislation.

Senator **Packwood**. I think that part of Senator Danforth's reasoning is that he has been unable to get the votes to mandate airbags.

If you add up your figures, did you say $3.8 billion would be saved, in medical expenses?

Senator **Danforth**. The cost to the Government, in payments for accident victims would be reduced by $3.8 billion. However, there is a cost to the taxpayer for the installation of airbags.

Senator **Packwood**. I was looking at the $300 tax credit times 10 million cars, although we have not manufactured 10 million cars, as I recall, for a number of years. That would be $3 billion in tax credits versus your estimated $3.8 billion in savings, which comes out as a net savings for the Government of $800,000 per year.

Senator **Byrd**. We have to assume that those figures are indeed a saving to the Government. I don't say they are not, I just have not heard the figures before.

The automobile manufacturers claim they are in bad shape, and I guess they are, but I don't think they are in any worse shape than the Federal Government is. [General laughter.]

We are talking about $100 billion deficit for 3 years in a row, and nothing like that has ever happened in this country before.

Senator **Packwood**. I think that is a conservative estimate.

Senator **Byrd**. I am afraid that it might be.

Senator **Danforth**. We are trying to chip away at this, Senator Byrd.

Senator **Packwood**. Doctor, thank you very much.

Dr. **Haddon**. Thank you.

Senator **Packwood**. You made a very good presentation.

Next is a panel consisting of Lowell Beck, General McDermott, Stephen Teret, and Clarence Ditlow.

Do you wish to go in the order that you appear on the witness list?

Mr. Beck, please proceed.

STATEMENT OF LOWELL BECK, PRESIDENT, NATIONAL ASSOCIATION OF INDEPENDENT INSURERS, CHICAGO, ILL., ACCOMPANIED BY DOUGLAS M. FERGUSSON, DIRECTOR OF SAFETY SERVICES, NATIONWIDE INSURANCE COMPANIES, COLUMBUS, OHIO

Mr. **Beck**. Mr. Chairman, thank you very much for this opportunity. I will not be reading from my statement, and would like to submit it, along with a summary, for the record.

Senator **Packwood**. As I indicated earlier, all of your statements and all of your summaries will be included in the record.

Mr. **Beck**. As the president of the National Association of Independent Insurers, I am particularly pleased to have this opportunity to appear this morning strongly in support of S. 1887, and to strongly applaud Senator Danforth for taking this leadership and this initiative to bring this bill forward.

Our association consists of over 500 property and casualty insurers who provide about 50 percent of the automobile insurance written in this country, and I am particularly pleased to be appearing this morning with Brigadier General McDermott, who is the chief executive officer of the U.S.A.A., and Mr. Douglas Fergusson, on my left, who is director of safety services for Nationwide Insurance Companies.

The record is filled with the statistics involved in this problem. Senator Danforth has very concisely set them forth this morning, and I am not going to repeat those facts and issues. I do want to point out that we are here because our people out there every day see this problem first-hand. Just as the police, and the medical personnel, we see this suffering and human trauma, and human tragedy, and for years this association has been attempting to develop policies that would encourage and, in fact, result in airbags.

The history of it is, from what we can tell and report to you over the years, that the automobile manufacturers appear not to want to proceed with this kind of program without regulation, or without some form of basic incentive. That, at least, was the case for a long time.

Then after a period of time, and after a lot of effort and many years, and many hearings, and strong evidence and substantiation, the Department of Transportation finally did promulgate a standard which would, in effect, mandate a form of passive restraint. Just recently, that same Department has rescinded that standard. In effect, we are left now with, apparently, the automobile manufacturers saying that they are not going to move forward at all, and with the Department of Transportation also saying that it is not going to move forward at all. So this association, along with others, has brought a suit in the court of appeals to attempt to reinstate the standard. We are hopeful that we will be successful with that, but on the other hand we certainly cannot be certain about it.

We are here, I think, out of a feeling of great frustration, and this, Senator, is why we are so grateful that you have come forward as you have with this legislation, because it is yet another step forward to try to accomplish this.

That really is all that I have to say this morning, that we are so grateful for this. It is a step forward, and we are in support of it. General McDermott will speak more to the substance of this issue, and if you have questions, I will be glad to speak to them.

[Statement of Mr. Beck follows:]

STATEMENT OF LOWELL R. BECK, PRESIDENT, NATIONAL ASSOCIATION OF INDEPENDENT INSURERS, BEFORE THE SUBCOMMITTEE ON TAXATION AND DEBT MANAGEMENT OF THE COMMITTEE ON FINANCE, UNITED STATES SENATE IN SUPPORT OF S.1887

January 28, 1982

Mr. Chairman and members of the Subcommittee, the National Association of Independent Insurers is very pleased to appear here today in support of Sen. Danforth's legislation to provide auto manufacturers with a tax incentive for producing cars with air bags.

I am Lowell Beck, President of the National Association of Independent Insurers. Accompanying me today are Brigadier General Robert F. McDermott, Chairman and Chief Executive Officer of United Services Automobile Association and also a member of NAII's Board of Governors and Executive Committee; and Douglas M. Fergusson, Director of Safety Services for Nationwide Insurance Companies.

NAII is a voluntary national trade association of more than 500 member insurers. Our organization provides a representative cross section of the casualty and property insurance business in America. Our members range in size from the smallest one-state company to the very largest national writers: they comprise both stock and nonstock corporations and reflect all forms of merchandising -- independent agency, exclusive agency and direct writers. They include insurers serving a general market and those that specialize in serving particular consumer groups such as farmers, teachers, government employees, military personnel and truckers.

On behalf of the membership of the National Association of Independent Insurers, I want to thank you, Chairman Packwood, and Committee on Finance Chairman Dole, for agreeing to hold this hearing today involving the important issue of automobile safety. NAII has fought for many years to increase car safety and reduce the costs and suffering caused by automobile accidents. We thought we had seen a major breakthrough with the development of the air bag, a passive air cushion occupant crash protection device. But recently, the Administrator of the National Highway Traffic Safety Administration (NHTSA) wiped out the federal requirement that all automobiles be equipped with a passive restraint system (including air bags) to provide occupant crash protection. Thus, we are very pleased that Senator Danforth has proposed legislation to keep the issue of passive protection devices alive, and we think it is entirely appropriate that air bags be at the center of this debate since they provide the best life-saving protection devised so far in most accidents.

In November last year, NAII initiated legal action to overturn the NHTSA Administrator's decision to scuttle the federal passive restraint program. Since our lawsuit is pending, I have attached to my testimony an NAII "white paper" on this subject, and request that it be included in the record. I will briefly mention the basis for our suit. We brought suit because the agency's recission order was arbitrary and capricious, it involved an abuse of discretion and was not in accordance with the National Traffic and Motor Vehicle Safety Act of 1966. Further, NHTSA did not have sufficient evidence or a proper basis to support that decision.

Senator Danforth's bill, S.1887, would provide a new incentive for manufacturers to use air bags in automobile fleets. The bill would allow manufacturers to claim a refundable tax credit of $300 for each car produced in the United States with an air bag in 1984 and later model year cars. A $300 excise tax would be levied on any new automobiles sold without air bags.

NAII supports all reasonable approaches which would induce automobile manufacturers to build more safety devices, particularly air bags into their cars, and we would refer you to our attached white paper for full documentation of their need.

Automobile death and injury is, in our view, clearly one of the most significant public health problems facing our country today. We are killing 140 Americans each day on our highways--a number equivalent to the consequences of a fatal crash of a major commercial airliner. Approximately 52,000 people were killed last year alone and the numbers are rising each year. A recent DOT study estimated that with the increasing number of smaller, less safe cars on the road, the death figures could climb to 70,000 by 1990.

The costs of motor vehicle accidents in the United States in terms of death benefits, medical expenses, lost wages, welfare expenses and property damages are staggering, totalling tens of billions of dollars each year.

As I said, we also believe that the technology is available today with passive restraints, like the air bag, to substantially reduce deaths and injuries due to auto accidents. It has been estimated that 9,000 lives a year could be saved, several hundred thousands of injuries a year could be prevented, and the net economic benefits to society could be several billions per year with air bags.

The Automobile Owners Occupant Protection Association, whose members include the companies that would supply air bag components to the auto manufacturers, has priced the total system to be in the $185-$200 range. This price includes the manufacturer's and dealer's markup and is minimal, we believe, when compared with the benefits to society. In our view, the bill should also result in a net benefit to manufacturers opting to use air bags since the costs would be less than the tax credit.

In conclusion, we think the decision to rescind the passive restraints standard was unwise and unlawful. While we are contesting that ruling in court, we would urge the Congress to speak on the issue and we urge this committee to take the lead by adopting a refundable investment credit as a tax incentive to achieve this urgently needed protection for the motoring public.

* * *

IN DEFENSE OF THE PASSIVE RESTRAINT STANDARD

A White Paper
by the
National Association of Independent Insurers*

The National Association of Independent Insurers (NAII) filed suit Wednesday, November 25, in the United States Court of Appeals for the District of Columbia Circuit to stay and ultimately overturn the recent decision of the administrator of the National Highway Traffic Safety Administration, Mr. Raymond Peck, rescinding the rule which requires automatic crash protection systems to be included in all new cars sold in America.

In our petition, we contend that the decision of the administrator was arbitrary, capricious, an abuse of discretion and not in accordance with the National Traffic and Motor Vehicle Safety Act of 1966, because NHTSA had insufficient basis or evidence to support the decision.

The NAII is taking this extraordinary legal action because of a strong dedication to the underlying policy of the National Traffic and Motor Vehicle Safety Act of 1966, under which the rule was originally adopted. The intent and purpose of the Act is to reduce motor vehicle accidents and the deaths and injuries which result from them. It directs the Secretary of Transportation to issue performance standards which will further that policy, and it is our strongly-held view that the recently rescinded rule does further that policy, and that the decision to cancel the rule in fact contravenes it directly, and is thus illegal.

---

* The NAII is a voluntary, non-profit trade association of 509 property/casualty insurers which write approximately half the private passenger automobile insurance in force in the United States.

The passive restraint rule was the result of almost a decade of very substantial deliberations. The rule was supported by Congress and was upheld by the United States Court of Appeals. But for the recent decision of the administrator to rescind the rule, full implementation could have saved as many as ten thousand American lives each year and prevented tens of thousands of serious injuries.

The member companies of the NAII have a strong economic interest in witnessing the successful implementation of the policy of the safety act. The cost of automobile insurance today is high and rising, and the future promises new cost pressures unparalleled in recent times. No businessman wants to face the prospect of being in a position of offering an unaffordable product, and our problem here is that we know that, without significant government action, the auto insurance affordability problem will worsen significantly. This direct financial interest parallels exactly the public interest in reducing insurance costs, saving lives and preventing injuries, as well as the governmental interest in reducing the overall societal costs of automobile accidents, deaths and injuries.

These cost problems are substantial. For example, one of our member companies reports that its average loss per claim for injuries resulting from automobile accidents has increased by approximately 30 per cent since the rule was originally issued in 1977, and these cost pressures, which are common to the automobile insurance industry, will continue to mount. Future auto insurance costs will increase because of continued unprecedented inflation and because of the shift to smaller, lighter, less safe, and less damage-resistant cars.

Indeed, just before it rescinded the passive restraint rule, the DOT issued a report warning that highway deaths could reach 70.000 by 1990. The announcement of this huge increase in traffic deaths came as no surprise to those active in the highway safety field, since essentially every study done to date has predicted that due to the smaller, lighter cars now becoming the rule in this country, highway death and injury in America will increase by 30 per cent to 40 per cent in the near future. Thus, the cost pressures currently being felt by our business, and consequently by our customers, will increase proportionately.

Our business interests are thus substantial, but no less substantial is our personal interest in striving to reduce the carnage on our nation's roads and highways. The insurance industry deals personally with injured automobile accident victims. We deal personally with the families of the deceased victims. We know on a first-hand basis of their pain, suffering, anguish, and of the grief and permanent family trauma which results from injury and death casued by automobile accidents. If the administrator's decision is reversed, and cost-beneficial occupant restraint technology is employed, much of this pain, suffering, grief, family disruption and economic loss can be avoided.

Automobile death and injury is, in our view, the most significant public health problem facing our country today. We are killing 140 Americans each day on our highways - a number equivalent to the consequences of a fatal crash of a major commercial airliner.

Tragically, motor vehicle accidents hit hardest at our young. These accidents are the major killer of Americans under the age of 34. As the Department of Transportation has pointed out in the past, one out of every 60 babies born today will die of a traffic accident, and most of them will die young. Out of every three people born in the United States today, two will suffer injuries in car crashes.

Motor vehicle accidents are the leading cause of epilepsy in adults, and also represent the leading cause of paraplegia and quadraplegia in this country. The human costs are staggering and carry with them a heavy economic drain on our society.

Motor vehicle accidents in the United States cost tens of billions of dollars each year in medical expenses, lost wages, welfare expenses and property damage. The statistics are frightening, and, as noted, the problem is getting worse. Highway deaths are rising. Over 50,000 people were killed in 1978; 51,083 in 1979, and 51,900 in 1980, even in the face of reduced travel, lower speeds, and a larger portion of new cars with more sophisticated engineering. And the problem is growing rapidly, driven by the move to smaller, lighter, less safe cars.

Our country has a quick and easy means to mitigate substantially this public health problem and it is our view that we must not refuse to employ this solution.

The safety standard adopted in 1977 does represent a substantial cure, and we believe both the law and the public interest demand that the '77 rule be implemented at the earliest possible date. The rule adopted in 1977 was based on a huge amount of evidence demonstrating its practicability, and its ability to meet the underlying purpose of the safety act. The administrator's recent decision on the other hand, was, in our view, based on little more than simple conjecture, and we now take this appeal because we believe the law as embodied in the safety act, and as implemented through the passive restraint standard, must not be allowed to be repealed on the basis of little more than speculation and guess. The issue on appeal is not an ideological one. Rather, the issue is whether an administrator has the authority to repeal a law passed by Congress and upheld by the courts on the basis of mere speculation about how automobile manufacturers might respond to it. The only truly "new" information on this administrator's record were statements by manufacturers in a regulatory setting that in response to the performance criteria of the standard, they would first refuse to employ air bag technology, and second, would design passive belt systems which would encourage non-use, rather than enhanced use.

The administrator's decision was based solely on these unsupported statements when he concluded that the public health benefits of the standard ought to be denied to car occupants since manufacturers would frustrate the goals of the standard with bad designs.

In our view, it was the administrator's legal duty to allow the standard to stand, since he knew that effective cost-beneficial technology exists in the form of both air bag and well-designed passive belt systems which would allow the manufacturers to meet the performance of the standard. The lives of tens of thousands of Americans and the well being of millions more demand, in our view, something better than untested remarks. They demand strict allegiance to the safety law.

Though the legal issues are technical in nature, and not ideological, some comments about the political nature of the controversy do seem warranted.

First, some now suggest that the federal government should play no role in the area of car occupant protection. The NAII does not agree. Initially, the United States Constitution states specifically that a principal reason for our federal government's existence is to promote the general welfare. In our view, government action which could save some 10,000 lives a year andprevent tens of thousands of serious injuries each year promotes the general welfare perhaps more substantially than any other government action, save perhaps the avoidance of war.

However, as noted, broad constitutional mandates are not the only legal basis for strong government action here. When it enacted the National Highway Traffic and Safety Act of 1966, Congress concluded that automobile safety regulation was essential to attack the public health problems of highway death and injury. Pointing specifically to the incapacity of the private sector to mitigate this public health problem, Congress instructed the secretary to issue motor vehicle safety standards which were necessary to reduce traffic accidents and the deaths and injuries which result from them. Thus, occupant safety regulation is not only an appropriate federal regulatory task, in a constitutional sense, it is, on a specific legal basis, a mandatory one.

Nor can the federal government leave regulation in this area to state and local governments. The automobile is such a dominant factor in interstate commerce that pervasive safety regulation at the state or local level would create chaos for the manufacturers, for their dealers, and perhaps for the economy at large. It is not feasible to design safety systems for cars on a state by state basis and even it it were, the fact is that the federal government has preempted state action in this field.

In our view, liberals and conservatives alike should oppose the administrator's decision to rescind the passive restraint standard.

There are few more conservative businesses than insurance, yet the occupant crash protection standard has had the support of virtually 100 per cent of the insurance business. This includes member companies of the National Association of Independent Insurers, the Alliance of American Insurers, the American Insurance Association, the American Council of Life Insurance, the Health Insurance Association of America, the National Association of Mutual Insurance Companies, the National Association of Professional Insurance Agents and the Independent Insurance Agents of America.

The medical profession (another very conservative group) has been strong in its support through the American Academy of Pediatrics, the American Congress of Rehabilitation Medicine, the American Nurses Association, the

American Trauma Society, the Epilepsy Foundation of America, Physicians for Automotive Safety, the National Spinal Cord Injury Foundation, the Physicians National Housestaff Association and many other medical groups.

The National Safety Council, supported by virtually all corporations in the United States, is also a strong supporter.

The American Automobile Association, noted for its conservative views, also endorses the occupant crash protection standard.

The International Association of Chiefs of Police has been a continuous advocate of the occupant crash protection standard and a particular supporter of availability of air bags in police cars and also automobiles available to the general public.

The view of these groups is that the government is and should be active in vehicle safety and in that effort should be promoting the newest technology and the most effective systems to prevent injury and save lives. And the manufacturers agree. In congressional testimony this year, Ford Motor Company stated clearly that vehicle safety requires regulation "because there was no direct market force that would accomplish these goals; yet competitive pressures make unilateral action by any one manufacturer impractical." General Motors made essentially the same admission.

We are aware of the current economic difficulties being faced by domestic car makers, and since new automotive insurance sales drop with a decline in new car sales we have an obvious economic interest in witnessing a return to good health on the part of our automobile manufacturing enterprises.

Moreover, the competitive consequences of the standard may well serve to benefit American car makers more than their foreign competitors, particularly the Japanese. This is true because data compiled by the Highway Loss Data Institute claims that the least safe cars on our roads are predominately Japanese makes and since all manufacturers both foreign and domestic would have to comply with the standard equally, the Japanese would have to make more substantial structural improvements, at additional cost to them, in order to comply with the 30 mph crash test performance criteria of the standard.

The standard is also clearly cost beneficial. Every previous Secretary of Transportation, Democrat and Republican alike, to review this question has agreed. Thus, the passive restraint standard is, in fact, the ideal form of regulation which saves both lives and money.

According to the testimony of air bag suppliers at the administrator's recent hearing, air bag systems could be included in all new cars for less than $200 a car -- about 1/2 the price of a good new car radio -- and this price includes a profit for both the car manufacturer and the car dealer who sells an air bag equipped car. Moreover, testimony at the same hearing, given by one of our member companies, demonstrated that if air bags were included on all cars, insurance consumers could save approximately $400 over the lifetime of the car in the form of reduced insurance premiums. Thus all of the other savings which would occur as a consequence of full implementation of the standard represent a huge net financial benefit for our society at large.

Well designed passive belt systems which would encourage very high use levels are even less expensive. The administrator simply chose to ignore these facts.

If the NAII is not successful in its appeal, our loss will pale in comparison to that sufferred in the future by American car occupants. This is true because unlike the choice of competing restraint systems which the standard would have offered them, Americans will continue to be forced to buy today's active belts -- which the government does not require to be crash tested to prove they will work in actual crash settings, and which are, in fact, rejected by 90 per cent of all car occupants. The result will be that tens of thousands of Americans who could be saved in crashes will die, and hundreds of thousands of others will be maimed.

Mr. **Beck**. I also would like to submit for the record copies of statements by Prof. William Nordhaus of Yale University who has written extensively and has spoken to the economic implications of this particular issue.

So, Senator, if I may, I would like to incorporate those statements by Professor Nordhaus.

Senator **Packwood**. His statement will be inserted at the end of your statement.

Mr. **Beck**. Thank you very much.

Senator **Danforth**. I wonder, Mr. Beck, if you could just briefly summarize the thrust of Professor Nordhaus' statement. Could you do that?

He is an eminent economist at Yale University, and has spent more time studying the economic consequences of this question.

Mr. **Beck**. The overall outcome is that the country would save literally billions of dollars as a result of airbag technology being in use. We would not only be saving money within the Federal Government itself, but the societal costs each year would be much less expensive.

I think Mr. Fergusson would be able to address the statistics of that briefly.

Mr. **Fergusson**. Yes; if that is all right.

Senator **Packwood**. Please go ahead, Mr. Fergusson.

Mr. **Fergusson**. Mr. Chairman and Senator Danforth, let me say, first of all, that the estimated cost savings, and conversely the costs, as estimated by Professor Nordhaus are consistent with those that you cited in your opening statement.

Just briefly, I would note that he had estimated that had the standard gone forward as it was originally set forth, that is effective in model year 1982 through model year 1985, the societal benefits would approximate $10 billion.

Conversely, he indicated that if there was to be a general rollback, as we have now seen there proposes to be, the societal costs could be on the order of $4.5 billion, and those are set forth in the executive summary of Professor Nordhaus' findings.

I would note that this study was commissioned in response to the proposal of the Department of Transportation early in 1981 for the 1-year delay, which subsequently was imposed.

Senator **Packwood**. Thank you very much.

[Statement and summaries of Professor Nordhaus follow.]

COMMENTS of WILLIAM NORDHAUS on
NOTICE OF PROPOSED RULEMAKING on
FEDERAL MOTOR VEHICLE SAFETY STANDARDS:
OCCUPANT CRASH PROTECTION [1]

Executive Summary

This filing investigates whether the proposed delay of a standard imposing passive restraints is economically justified. After examining evidence from this and earlier rulemakings, I conclude:

1. The current passive restraint requirement (FMVSS 208) has very substantial net benefits compared to current lap and shoulder belt usage. According to the economic analysis presented here, the current rule has net benefits of approximately $10 billion for model years 1982-85. The substantial economic gain from passive restraints should not be ignored in debates on fine-tuning the phase-in.

2. Using standard analysis, the ranking of options in terms of net benefits is as follows (with the first having the highest net benefits and the last the lowest net benefits):

(1) Simultaneous 1983 implementation (all cars equipped with passive restraints in 1983).

1/ This filing is sponsored by Allstate, Kemper, Nationwide, State Farm, and Travelers Insurance Companies. The views are personal and do not represent the views of any of the above institutions.

My professional background is the following. I received a B.A. from Yale in 1963 and a Ph.D. in Economics from M.I.T. in 1967. In 1967 I joined the staff at Yale University and am currently the John Musser Professor of Economics at Yale University. From 1977 to 1979, I was a Member of the President's Council of Economic Advisers with responsibilities for regulatory and microeconomic policies. As part of those duties, I organized and served as first chairman of the Executive Branch Regulatory Analysis Review Group until February 1979.

My professional publications have been on numerous subjects, including on economic growth, inflation, the productivity slowdown, energy and resource use, technical change, and regulation.

I have served on committees of, consulted for, or prepared reports for groups such as the National Academy of Sciences, several Departments of the Federal Executive, and several Congressional committees.

(2) Delay and reversal (small cars in 1983, intermediate cars in 1984, large cars in 1985).

(3) The current rule (large cars in 1982, intermediate cars in 1983, and small cars in 1984).

(4) The proposed delay (large and intermediate cars in 1983, small cars in 1984).

(5) General rollback (large cars in 1983, intermediate cars in 1984, large cars in 1985).

3. A sensitivity analysis shows the ranking of alternatives is unchanged under a wide range of alternative assumptions.

4. Any deferral of requirements to install passive restraints on any size automobile has net costs unless it is "traded in" on an acceleration of requirements on a larger number, or a smaller sized, set of automobiles.

5. In terms of the costs and benefits of different options, there is no justification for either the proposed delay or for a general rollback. In particular, the economic costs of the proposed delay are approximately 5 times greater than the benefits, for a net cost of over $200 million. The net costs of the general rollback are significantly greater, in the order of $4.5 billion.

6. There appears to be strong economic justification for the simultaneous 1983 option if it is technically feasible.

7. The analysis indicates that the delay and reversal option has the highest net benefits of any of the four considered in the proposal and Regulatory Analysis. The superior net benefit of delay and reversal arises because the reversal of the requirement to small cars first affects a larger number of automobiles more quickly and because the net economic benefits per vehicle are greater for small cars than for large and intermediate cars.

8. The estimated impact of the proposed delay on the automobile industry is miniscule. There will be little or no improvement in the "health" of the domestic automobile industry from the proposed delay. For this reason, nonregulatory considerations discussed in the notice (the effect on imports, the conditions of the automobile industry, or freedom-of-choice arguments) should not, from an economic point of view, enter in this rulemaking.

I. GENERAL CONSIDERATIONS

A. Background for this Rulemaking

On February 12, 1981, the National Highway Traffic Safety Administration (NHTSA) proposed a modification of FMVSS 208 on passive restraints [1]. NHTSA proposed to delay the requirement for introduction of passive restraints in large automobiles (wheelbase greater than 114 inches) from model year 1982 to model year 1983. In addition, NHTSA asked for comment on two alternatives for phasing in passive restraints.

The proposed rule changes a key element of the existing FMVSS 208 promulgated on July 5, 1977. The major issue in the present rulemaking is whether facts and circumstances in the area of passive automotive restraints have changed sufficiently to require a new rule. NHTSA gives two reasons why a new rule might be warranted:

- o New data on the costs and benefits of the existing rule may have come to light since 1977.
- o New data on the conditions of the automobile industry may suggest a revision of the current rule.

In particular, NHTSA's discussion of the proposed rule and its Regulatory Analysis ("RA") [2] raise concerns about the composition of the auto fleet and about the present state of the automobile industry.

On the first point, NHTSA suggests that a reduction in the proportion of new cars falling in the large category "has substantially reduced the benefits anticipated from applying the automatic restraint requirement to model year 1982 large cars." [(1), p. 12034] On the second question, NHTSA states that it "is concerned whether changed circumstances in the automobile industry may make the automatic restraints as now scheduled impractical." [(1), p. 12033 f.]

In this filing, I will discuss both considerations of the changing shape of the automobile industry and the net benefits of the proposed change of FMVSS 208. This comment does not address the legal question of whether either the condition of the industry (or of individual firms) or the impact on international trade is relevant under the pertinent statutes.

B. The State of the Automotive Industry

There is little doubt that the automobile industry in the United States today is in a depressed condition. Sales of domestic autos fell from 8.2 million in 1979 to 6.6 in 1980. [(3), p. 1.51] The largest three auto companies lost a record $4.0 billion in 1980.

Most forecasts predict a recovery in sales over the coming two years. Thus the February 1981 forecast by Data Resources, Inc. projects recovery of sales (seasonally adjusted annual rates) of new passenger cars from an annual rate of 9.2 million units in the first half of 1981 to 10.4 million in 1982. In addition, the share of imports is expected to fall from 27 percent in the last quarter of 1980 to 24 percent in 1982. [(3), p. 1.51]

The reasons for the current hardships are generally agreed upon by outside analysts. First, the repeated oil shocks of the last 8 years have badly shaken the confidence of consumers and have changed the automobile mix from predominantly large to predominantly small cars. Second, the domestic auto industry was poorly prepared for the drastic shift in consumer preferences. Until 1973, the North American market was largely protected from international competition because of the predominance of large car use in North America and the economies of scale in producing for a large domestic market.

Most important, however, have been high interest rates and the severe decline in real consumer incomes -- both of which have led to a very sharp decline in automobile sales since 1979. Capacity utilization in automobiles, particularly in plants producing large cars, has fallen to extremely low levels. In such conditions, economic losses and high unemployment are the inevitable effects. [For reviews of recent developments in the automobile industry, see (4), (5), and (6)]

Some have suggested that regulatory burdens have been a major element in the economic hardships of the auto industry.

While there can be little doubt that the automobile industry has been affected by Federal regulation over the last 15 years, it would be a mistake to roll back a sensible regulation for purely symbolic reasons. All domestic and foreign automobiles sold in the United States are subject to regulation on a nondiscriminatory basis. In some respects, imported automobiles are disadvantaged because they must tool up for specific U.S. regulations and must spread the costs over smaller production runs. [See (4), p. 44]

Second, the magnitude of the regulatory burden on the auto industry is not extraordinary relative to the rest of American industry. The only reliable data collected by the Federal government are pollution control costs. According to these data the ratio of pollution abatement costs to sales or to all capital outlays is markedly smaller for the auto industry than for manufacturing as a whole. [See (7), (8), and (9)]

In any case, as far as the proposed revision to FMVSS 208 is concerned, the potential savings are extremely small relative to the capital commitments that automakers face. According to DOT, domestic firms face total investment requirements of $80 billion in 1981 prices over the 1979-85 period. [(2), p. I-3 as well as (4), p. 64 ff.] Against this are potential savings of $0.020 to $0.052 billion from rolling back the automatic restraint requirement for large cars.[2] Therefore, it is unlikely that the proposed rule will make a significant dent on the industry's capital budget.

One final consideration concerns the requirements of FMVSS 208. Although it has often been thought that the standard mandates airbags, this is not the case. The standard is a performance standard, requiring occupants to be automatically protected in collisions up to 30 degrees on each side of a frontal crash at speeds up to 30 mph into a fixed barrier. This point is of importance as it is widely agreed by experts in the field of government regulation that performance standards are superior to design standards. [See articles by Miller, Crandall, and Weidenbaum in (37)]

C. Impact of this Rule on the Automotive Industry

NHTSA raises the question of the impact of the proposed rule on the automobile industry. While it is not possible to perform a complete analysis of the industry within the scope of a 30-day comment period, Appendix B gives a qualitative discussion of the impacts. That discussion is summarized briefly in this section.[3]

A key issue in judging the economic impacts of the proposed delay is whether consumers will use a "first-cost" or a "life-cycle" framework in making their decisions. Under the former approach, leaving the current rule intact will probably lead to a small decrease in auto sales for MY 1982 -- in the order of 0.06 percent (or 6000 vehicles) -- most of which will impact large cars. Under the life-cycle approach, there will be no decrease, and possibly an increase, in automobile sales.

The effect on the overall health of the industry will be minimal. Depending on the industry's pricing strategy and the consumer decision process discussed in the last paragraphs, auto company revenues may stay about the same or go up slightly. Profits are likely to be changed by minus $10 million to plus $10 million.

2/ Remaining capital outlays for 1982 automatic restraints for GM and Ford were $52 million as of January 1981. Assuming that Ford's capital costs savings are the same as GM's for a rollback on April 1, 1981, a total of $20 million in capital outlays for domestic firms could be saved with a rollback for large cars. See (2) for data given in this footnote.

3/ It should be noted that the estimates given here are highly simplified and assume that past economic relations (particularly price elasticities) have not changed markedly. It thus represents a "best-guess" estimated impact. As in all such estimates, due to random errors or econometric misspecification, the ex post outcome may well differ in some degree.

Given the very low level of substitutability of sub-compacts for large cars, virtually all the impact is likely to occur through changes in sales of large and intermediate cars. The effect of the proposal on imports will be miniscule.

Overall, then, I expect there to be little or no improvement in the health of the auto industry from the delay proposal.

D. Does the Government Have any Business Requiring Passive Restraints?

Although the issue of government involvement in mandating passive restraints is not an issue in this rulemaking, much recent public discussion has focused on this broader issue. [*See* (10), (11)]

There are two classes of reasons for government to mandate safety measures in automobiles (or indeed in general): (i) the government may choose to override individual decisions and (ii) there may be external effects (or "externalities") in traffic accidents.

The broad philosophical issue of government overriding individual preferences is beyond the scope of this comment or rulemaking. There is little doubt, however, that Federal, state, and local governments have a well-established role in traffic safety. NHTSA was authorized by the 1966 Act to issue motor vehicle standards. The passive restraint standard has been reviewed and upheld in the Federal Courts. The very rule that is subject to revision here -- FMVSS 208 -- was reviewed and left intact by Congress in 1977 under a legislative veto provision.

The issue of external effects of traffic accidents is more technical but presents an even more compelling case for government standards. Thus, it has long been recognized that government policies are required to offset the effects of externalities. [For recent discussions *see* Schultze (36), Chapter 3 and Weidenbaum (10), p. 12]. In particular, society and government have, from an economic point of view, a large stake in the level of traffic safety. According to DOT, motor vehicle accidents cost approximately $50 billion in 1979 [(12), p. 1]. Updating earlier studies to 1981, it appears that $15-$20 billion of economic costs will occur as a result of injuries and fatalities to front seat occupants [*see* Table A-2]. Only a fraction of these costs are internal to decisionmakers, the rest being borne by government or insurers through third-party payments. The most important examples of external costs are:

o Medical costs covered by insurance, medicare, medicaid, or tax subsidies.

o Welfare, unemployment, and social security payments to support families of accident victims.

- Retraining and rehabilitation costs for victims.

- Reduction of tax base and loss of human capital of accident victims.

It appears extremely difficult to obtain a precise estimate of the extent to which the costs of motor vehicle injuries and fatalities are external. One study suggests that about one-half of total personal and family economic losses are recovered through insurance and other mechanisms. [See (18), and p. 2] If one-half of costs are thus external to victims, society has a very high stake in reducing the economic costs of accidents.

In addition to the externality consideration, there is evidence of market failures in the provision of new services in the automotive industry. Surveys indicate a considerable potential consumer demand for added safety features. [See (17) and (19)] Yet the "Big Three" do not offer even the option to purchase passive restraints today. It is difficult to see how free consumer choice can operate when no option to buy passive restraints is offered.

Observers have often been puzzled about why the market fails to provide the added safety features that consumers do, in fact, appear to demand. This fact stems from market failures that are common in a market economy.

First, firms have difficulty recovering large research, development and design expenses unless a substantial number of automobiles having the added safety features are sold. Thus, a private firm would lack the economic incentive to supply such features only as an option on certain models. Second, it is a well-established tenet of economic theory that private firms often lack sufficient incentives to pursue expensive research and development projects where it is difficult to appropriate all of the benefits of such efforts. These two reasons help explain why the auto consumer is unable to exercise fully freedom of choice in selecting the desired safety equipment.

E. Issues of Trade Policy

One of the major arguments advanced for the proposed rule is that the domestic manufacturers supposedly are injured by imports. [See (1) and (2)] Moreover, the RA suggests that the proposal would discriminate against domestic manufacturers because they are the predominant producers of large cars; imports fall in a size range to which the passive restraint rule will not apply until MY 1984 [(2), p. V-6].

The arguments to consider trade consequences are disturbing on two grounds. First, there was an extensive investigation under section 201 of the Trade

Act last year, with a final report issued in December 1980. [See (5)] The study and report by the International Trade Commission (ITC) has been established by law and precedent as the place where the extent of injury from imports is determined.

Historically, the ITC has been relatively sympathetic to import injury cases, and has found imports to be a substantial cause of injury in several cases where the President applied less restrictive import relief (particularly shoes, copper, and televisions). Yet, after a lengthy set of hearings and briefs, the ITC found on December 3, 1980 that automobiles "are not being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or the threat thereof, to the domestic industries producing articles like or directly competitive with the imported articles." [(5), p. 1] In the words of Commissioner Stern, summarizing her view, "The industry is suffering from problems that will continue as long as the credit situation remains tight and recovery is delayed. But this threat of continued injury is not related in any substantial fashion to imports." [(5), p. 166]

The second issue is whether the proposal is likely to have a significant impact on imports. I discussed above the potential quantitative impact of the proposal on the different segments of the auto industry. I indicated that, under conventional assumptions, the likely effect would be to increase total auto sales by from zero to 0.06 percent. This increase would occur primarily in the market for large domestic autos rather than imports, as the differential price decreases would apply only to large cars. The decrease in imports would be miniscule.

F. Should Regulations Be Designed To Protect Specific Firms?

The discussion of the regulation indicates that concern for Chrysler is a particular issue in this rulemaking. [See (2), p. II-2, II-6, II-7]

It should first be noted that Chrysler will produce no large cars in MY 1982 [(2), p. II-7]. Thus the proposal has no direct impact on Chrysler. Indeed, it is conceivable that Chrysler would be harmed rather than benefitted by the proposal if, under the current rule, there would be some shift from large to small and intermediate cars.

Alternative strategies might, on the other hand, impose higher direct costs on Chrysler. In particular, the "delay and reversal" strategy would accelerate the requirement for passive restraints in small cars from MY 1984 to MY 1983.

Examining the effect on Chrysler more generally, there are three reasons why it should not be a consideration in this rulemaking.

First, regulations should weigh costs and benefits on the entire industry and society: costs imposed on GM should be just as important as those on Chrysler. Regulators should avoid tailoring rules to individual firms. Bending rules for failing firms penalizes the efficient, and gives very poor incentives to management. If, however, special relief for one company is deemed appropriate, it should be considered in a legislative forum: in this way the entire spectrum of alternative relief measures and policy tradeoffs can be debated and weighed.

Second, Chrysler was recently subject to an intensive and complete review by the Executive and Congress, resulting in the Chrysler Corporation Loan Guarantee Act of 1979. Although both branches were given views stating the magnitude of Chrysler's regulatory burden, both the Executive and Congress decided that the appropriate relief was through loan guarantees rather than deferring regulations.[4/]

Finally, the impact on the industry and on individual firms is likely to be below the threshold of observation.

II. QUANTITATIVE ASPECTS OF THIS RULEMAKING

A. Cost Savings From the Proposal

The RA discusses cost savings from the proposed rollback for large cars in two categories: those to automobile manufacturers and those for consumers.

Manufacturers would save both capital and variable costs. Ford and GM estimate that they will spend a total of $98 million to equip large cars with passive restraints. However, of this sum, $46 million was already spent or committed by January 1981. Moreover, GM estimates that it will have spent or committed 80% of the total required capital cost by the end of March, 1981.

If the time phasing of Ford's capital outlays is similar to those of GM, this suggests that as of April 1, 1981 the incremental capital cost of the passive restraint for 1982 will be in the order of $20 million.

There are no reliable estimates of variable costs given in the RA. The figures used -- $31 to $43 per vehicle -- are derived from the ratio of variable to capital outlays for the entire vehicle. [(2)]

[4/] In the Senate Report on the Act (38), the Committee states: "the Secretary [of the Treasury] emphasized that the Administration does not believe that Federal assistance to the Chrysler Corporation is justified by the claim that Chrysler is burdened by excessive costs of complying with Federal environmental and safety regulations." [(38), p. 9f]

Costs to consumers are estimated to be $50 per vehicle by NHTSA, while GM estimates costs to be in the range of $70 to $100 per vehicle (although it is not clear whether GM's estimate is incremental over existing requirements). While it is not possible to divine the source of the difference, such discrepancies are common in these rulemakings. After reviewing a similar discrepancy in 1976, Secretary Coleman stated "I firmly believe that DOT's cost estimate is the most realistic. . . . The G.M. estimate is questionable for . . . five reasons." [(13), pp. 46, A-10]

It is noteworthy that the estimated costs of passive restraints are actually lower than estimates used in the past. In 1977, it was assumed that there would be a 50:50 mix of airbags and automatic seat belts, with the former estimated to be more expensive. As the manufacturers' present plans indicate that only the automatic belt will be used, the costs of meeting the standards are lower than had earlier been thought.

Although there is some uncertainty about the cost savings of the proposed rule, the best guess appears to be that the resource savings would be $50 per vehicle and the consumer savings would be approximately $60 per vehicle excluding any change in insurance costs [see detailed discussion in Appendix A]. Thus, if there are 1 million large vehicles sold in MY 1982, the total resource savings will be in the order of $50 million, while the total consumer cost savings will be in the order of $60 million (exclusive of insurance cost changes).

B. Benefits of the Proposed Rule

While there are cost savings from the proposed rule, there will also be substantially higher levels of fatality and injury. According to the RA, over the lifetime of the relevant vehicles (i.e., the large MY 1982 cars) there will be approximately 600 more fatalities and 4300 more injuries if the passive restraint rule is rolled back.

The RA has two very serious omissions in its examination of costs and benefits. It omits from the analysis of reduced benefits the economic savings from reduced fatalities and injuries; and it does not address possible savings in insurance costs to consumers.

In the analysis that follows I use two different approaches: (a) societal cost-benefit analysis and (b) consumer cost savings. The first is the conventional approach, while the second is a way of highlighting those identifiable elements most visibly affecting consumers.

The reduced societal economic benefits from higher levels of injuries and fatalities of the proposed delay are substantial. Using the methodology presented in 1976 and 1977, and updating the figures to 1981 prices, the reduced societal economic benefits from the proposed large-car delay are approximately $300-350 million.[5]

When the predicted reductions in injuries and fatalities are realized, there will be a reduction in consumer insurance costs from what they would otherwise be. According to data submitted by Nationwide, savings in 1979 on auto insurance costs alone would have been approximately $44 per insured car per year had all cars been equipped with air bags. [See (39)] These savings in insurance costs, appropriately adjusted, are an indication of savings per insured car as passive restraints penetrate the fleet. It is important to realize, however, that only a portion of these savings will be realized by owners in the form of savings of first party personal injury premiums. The balance will be spread over the rest of insured cars in the form of reduced third-party premiums.

Adjusting the $44 figure for relative expected use of the two types of passive restraints, and adding life and health insurance premiums, gives a likely savings of $30 per year per car equipped with automatic belts. Over the life of the vehicle, the present value of $30 per vehicle savings to consumers is approximately $225.

Nor is this calculation pure speculation. Many insurance companies currently offer for cars equipped with passive restraints a 30% discount on automobile first party medical and no-fault coverages. These data are consistent with the Nationwide estimate for insurance cost savings.[6]

---

[5] The lower figure uses the methodology of Appendix A, omitting AIS 1-3. The higher figure includes estimates of reduced levels of injury in AIS 1-3 according to DOT's 1976 methodology as in (13), p. A-2. This calculation is discussed in Appendix A and in the next section.

[6] From an analytical perspective, actual discounts to owners of cars with passive restraints will only apply to first-party medical coverage. In states with unlimited no-fault coverage, then, there will be a direct linkage between auto safety decisions and consumer insurance costs. According to Allstate (41), the 30% discount amounts to approximately $20 per car equipped with air bags in the three states with unlimited no fault.

Further, it should be noted that total auto injury premiums in these states are two to four times first-party medical auto premiums. If the $20 per equipped vehicle is grossed up by this ratio, the implicit savings would be in the order of $40 to $80 per equipped vehicle per year.

It should be realized that these figures are a substantial understatement of the savings actually accruing directly to consumers. Insurance benefits cover only a portion of the injury-related cost borne directly by the consumer such as medical costs, lost earnings, etc., as is shown in (18).

The reduction in insurance costs is a reflection, of course, of the enhanced safety of cars equipped with passive restraints. Given that insurance premiums are basically rooted in claims experience, there is no reason to doubt that the lower costs from fatality and injury from a fleet equipped with passive restraints would be passed on to consumers in premium savings.[7]

C. Valuation of Injuries and Fatalities in Cost-Benefit Analysis

Having described the costs and benefits of the proposed rule and alternatives, it is clear that virtually all the benefits of passive restraints arise through reductions of motor vehicle fatalities and injuries. This fact requires a consideration of the appropriate valuation of injuries and fatalities in cost-benefit analysis.

It should be emphasized that, particularly under the new Executive Order on Federal Regulation issued on February 17, 1981, new major regulations of Executive Branch agencies must be accompanied by a Regulatory Impact Analysis that must contain quantitative estimates of costs and benefits. [Section 3(d)] In addition, the Order directs Executive Branch agencies to issue new rules only where the potential benefits to society outweigh the potential costs, except where otherwise required by statute [Section 2(b)].

It is widely agreed by practitioners of cost-benefit analysis that efficient use of society's resources requires the assignment of an explicit and consistent value on the prevention of fatalities and injuries. [(20), p. 4.] Similar views can be seen in standard textbooks on cost-benefit analysis.

There are two alternative approaches to valuing fatality and injury prevention: (1) estimating the market value of losses and (2) using an imputed dollar value of losses.

(1) The market value approach estimates the direct and indirect costs of injuries and fatalities. It cumulates the medical costs and lost wages, and discounts these over the expected lifetime of the person involved. Such an approach has the advantage of including only variables that can be readily quantified;

---

[7] For a detailed discussion of the sources and methods for the figures used in this Section II(B), see Appendix A.

its disadvantage is that it omits intangible but important costs such as pain and suffering.

(2) The imputed value approach attempts to examine either individual or government decisions to uncover the implicit value used in preventing deaths or illness. Such an approach has the advantage of including all relevant costs; the disadvantage is that it is inherently "fuzzier" and that imputed costs from different sources differ by enormous amounts.

Table A-1 in the Appendix contains a number of estimates of the value of human life from a recent survey by Bailey (21).[8/] This table has been updated, put into 1981 prices, and has been supplemented by the cost of fatalities that was used in the last FMVSS 208 rulemaking in 1977. In addition, Table A-2 shows estimates of the total societal costs of motor vehicle injuries and fatalities using the estimated costs from Table A-1. These estimates indicate that, in 1981 prices and levels of economic activity, the costs of motor vehicle injuries and fatalities to front-seat occupants are in the order of $15-20 billion annually.

III. COMPARISONS OF OPTIONS

A. The Options Considered

In the cost-benefit analysis presented here I consider five options. These are the four alternatives considered in the RA as well as one "simultaneous 1983" option. The precise options are as follows:

1. The current rule (large cars in 1982, intermediate cars in 1983, and small cars in 1984).

2. The proposed delay (large and intermediate cars in 1983, small cars in 1984).

3. Delay and reversal (small cars in 1983, intermediate cars in 1984, large cars in 1985).

4. General rollback (large cars in 1983, intermediate cars in 1984, large cars in 1985).

5. Simultaneous 1983 implementation (all cars in 1983).

[8/] The extreme values reported in the Table A-1 -- at both the low and high ends -- are ludicrous and should be ignored. For example, the $86,000 recommended for benefit-cost analysis by the National Safety Council nearly ten years ago omits lost earnings due to death and any economic valuation of pain and suffering. At the other extreme, the $915,600,000 imputed to OSHA for acrylonitrile should be dismissed because OSHA claimed at the time that it was not legally permitted to balance costs and benefits.

B. Ranking of the Alternatives

Appendix A presents the details of a cost-benefit analysis of the five options. The results for the base case are shown in Table A-3 of Appendix A, while Tables A-4 and A-5 show the results when certain key variables are subject to sensitivity analysis.

It should be noted that the introduction of passive restraints in general has substantial benefits. The net benefits of the current standard compared to no passive restraints exceeds $10 billion [see Table A-3]. Thus, it would be a serious economic error to rescind the passive restraint rule.

According to the cost-benefit calculations, the net benefits of the five options relative to the existing rule are as follows (all calculations are net benefits relative to the current rule in 1981 prices for the life of the automobiles of model years 1982 through 1985):

	Option	Net benefits relative to existing rule (millions of 1981 dollars)
1.	Current Rule	0
2.	Proposed Rule	-235
3.	Delay and Reversal	+1,117
4.	General Rollback	-4,512
5.	Simultaneous 1983 Implementation	+2,622

Among the several options, the least attractive are the general rollback and the proposed rule. The best are the simultaneous 1983 implementation option and the delay and reversal strategy.[9]

Table A-3 also indicates the effects on consumer costs. The rankings for consumers are identical to those for the societal cost-benefit analyses.

---

[9] The cost-benefit data used to derive the rankings can also be used to shed light on other alternatives not considered by NHSTA in this rulemaking. For example, an alternative that would impose passive restraints simultaneously in 1984 is clearly inferior to the current rule, the proposed delay, the delay and reversal option, and the simultaneous 1983 alternative. The simultaneous 1984 option has net benefits approximately equal to the sum of the net benefits of the simultaneous 1983 option plus the general rollback option -- the sum being minus $1.9 billion in net benefits relative to the current rule.

C. Sensitivity Analysis

Appendix A provides sensitivity analyses for the major uncertain variables in the cost-benefit analysis: costs of passive restraints, usage rates of passive belts, value of injuries and fatalities prevented, and insurance cost savings.

The sensitivity analyses indicate that the results of the cost-benefit analysis are robust with respect to the major uncertain variables. The rankings of the alternatives do not change in any of the sensitivity analyses. Table A-5 presents a "worst/worst/worst" case, in which all sensitivity factors take values unfavorable to passive restraints. Even in this case there is no change in the ranking of the options.

IV. CONCLUSION

The foregoing cost-benefit analysis demonstrates the clear economic benefits of the current passive restraint standard relative to existing practice. Moreover, it indicates that any deferral of the passive restraint requirements has net economic costs unless it is "traded in" on an acceleration of requirements on a larger number, or a smaller sized, set of automobiles. Of the options examined here, the one with the highest net economic benefits is simultaneous implementation on all cars in 1983 (provided that it is technically feasible). The option suggested by NHTSA in its notice with the highest economic benefits is the delay and reversal. These conclusions remain unchanged under a wide range of alternative assumptions.

APPENDICES AND TABLES

Table A-1.

Updated Estimates of the Cost Per Life Saved in Programs Supported, Operated or Mandated by Government

Program	Cost Per Life Saved ($)
Medical expenditure (21)*	
Kidney transplant	166,000
Dialysis in hospital	621,000
Dialysis at home	228,000
Traffic Safety	
Recommended for benefit-cost analysis by the National Safety Council* (21)	86,000
Estimate for elimination of all railroad grade crossings* (21)	249,000
DOT Cost of Accident Study (16)	480,000
Hartunian et al. (30)	260,000
Military policies* (21)	
Instructions to pilots on when to crash-land airplanes	61,000
Decision to produce a special ejector seat in a jet plane	10,350,000
Mandated by regulation (21)	
Coke oven emission standard, OSHA	7,300,000 to 256,000,000
Proposed lawn mower safety standards, CPSC	390,000 to 3,120,000
Proposed standard for occupational exposure to acrylonitrile, OSHA	2,875,000 to 915,600,000
Imputed Value Approach (21)	
High	940,000
Intermediate	480,000
Low	220,000

Source: The estimates in this table are adjusted for the growth in nominal GNP per capita since the dates of the original data. In the case of estimates marked by (*), the adjustments were made from the dates on which the studies were published (rather than dates of the original data) and therefore underestimate the correct current values. Nominal GNP is assumed to grow at a rate of 11% in 1981.

Estimated Costs
of Motor Vehicle
Injuries and Fatalities
billions of dollars)

Comprehensive Studies	Study Year Prices	1981 Prices
Hartunian et al., 1975 (30), all accidents	14.4	24.3
DOT, 1975 (15), front seat occupants only	11.2	18.9
Using Methodology of this Report		
Costs of injuries and fatalities (front seat occupants) (27,000 fatalities/yr, AIS 4-6 only)		15.8
Total (50,000 fatalities)		29.3

APPENDIX A

COST-BENEFIT ANALYSIS OF PROPOSED RULE AND ALTERNATIVES

The cost-benefit analysis presented in this appendix is intended as an update of earlier analyses in light of current costs, benefits, and economic conditions. All dollar amounts have been updated to 1981 prices.

It is important to note that it is impossible to do a complete cost-benefit study within the limitations of a 30-day comment period. While sensitivity analysis indicates the results of the current review to be robust with respect to changing assumptions, it should be seen only as an attempt to provide order-of-magnitude estimates of net benefits.

The appendix is divided into four sections. The first outlines the assumptions for the base case. The second details the alternative values used in the sensitivity analysis. The third and fourth sections present the results of the analysis for the base case and the sensitivity analyses.

ASSUMPTIONS FOR COST-BENEFIT ANALYSIS: BASE CASE

1. Passive or automatic belts will be used by automakers to meet the passive restraint requirements. [See (2), p. V-2.] FMVSS 208 is a performance standard. As such, it requires occupants to be automatically protected in frontal collisions within specified limits and vehicle speeds. Any technology meeting the performance standard is acceptable; the rule does not require airbags.

2. Production Levels and Mix

NHTSA's figures for sales and size mix are used for MY 1982 [(1)]; for 1985 we have used estimates from the Secretary's Report [(4), pp. 7,9]. Intervening years were estimated by linear interpolation. Sales were assumed to be a nominal 10 million vehicles per year.

Note that the net benefits are only scaled up or down by larger or smaller total sales; there is no change in the size of the net benefits per vehicle for larger or smaller total sales. As most forecasts project a level of sales above 10 million per year, the absolute size of net benefits is probably underestimated here.

Assumed values for sales by size (in thousands) and percentage breakdown by size are as follows:

	Model Year and Percent of Total							
	1982	%	1983	%	1984	%	1985	%
Large	1,000	10	667	7	333	3	0	0
Inter.	3,800	38	3,567	36	3,333	33	3,100	31
Small	5,200	52	5,766	58	6,333	63	6,900	69

3. Incremental passive or automatic belt resource cost is assumed to be $50.

The most careful evaluation of the costs of automatic belts was given in the 1977 rulemaking. The 1977 RA (15) and Explanation (26) give the following estimates of the details of the expected costs of passive belts. [(15), p. 18]:

	1976 Prices	1981 Prices*/
Labor and Materials	$18.50	$26.85
R&D, Retooling	9.50	13.80
Cost of Fuel	5.10	8.95
Total	$33.10	$49.60

---

*/ Except for fuel, 1976 costs are updated using the GNP deflator. Fuel prices for 1981 are set at $1.40 per gallon.

The 1981 RA [(2), p. i] gives a summary of incremental costs for installing automatic belts as follows:

	Per Vehicle	Total
Manufacturer	$31-43	$31-43 million
Consumer	50-70	50-70 million

These figures exclude any capital costs, apparently assuming there will be no capital cost savings by the time any change in the rule for MY 1982 occurs. The RA states [page V-3 of (2)] that the primary savings to manufacturers will be variable costs -- direct labor, materials, parts, and overhead. The RA further notes [(2), p. V-4] that consumer costs include variable costs, fixed costs, capital recovery, manufacturing profits, and dealer discounts. Fuel costs are apparently excluded. Insurance costs are explicitly excluded [(2), p. I-5].

Although there is a wealth of inconsistency, a figure of $50 per vehicle of manufacturers' resource cost plus fuel costs appears to be the best figure currently available. This may slightly overstate the savings from delaying introduction of automatic belts in large MY 1982 cars.

4. Consumer costs of passive or automatic belts are assumed to be $60.

This is consistent with the RA's $50 per vehicle of consumer costs [(2), p. V-2] plus $9 for fuel, rounded to $60.

5. Automobile lifetime is assumed to be 10 years [(1)].

6. Insurance costs are assumed to grow less rapidly and to be lower by $30 per year per vehicle with passive restraints. The present value of this savings is $225 (see discounting assumption below).

This figure is obtained as follows. First, in its submission [(39)] Nationwide estimates that a fleet equipped with air bags (and low or no-belt use) would lead to a reduction in costs of $43.73 per insured car per year in 1979 ($52.04 in 1981 prices).

Adjusting this for omitted health and life insurance premiums as estimated in 1977 [(40), p. 2] yields a savings of $57.70 (or $68.66 in 1981 prices).

Further adjusting by the ratio of the difference in incremental usage of automatic belts to air bags, I estimate the usage rate of air bags to be 100 percent, with a 57 percent usage for passive belts. If lap and shoulder belt use is 12 percent [(12)], then the ratio of incremental use increase is [(57 - 12)/(100 - 12)] = 45/88 = 0.51. Assuming injury and fatality prevention reduction per car using passive belts and air bags are the same -- a reasonable assumption according to (14) and (13) -- yields an insurance savings of 57.70 x (45/88) or $29.50 in 1979 ($35.11 in 1981 prices).

Finally, the calculations assume a two-year lag of consumer costs behind claims experience, yielding insurance savings of $25.77 in 1979 (or $30.67 in 1981 prices).

7. Fatalities avoided by use of passive restraints are assumed to be the following by vehicle size:

Large (wheelbase greater than 114")	6/100,000 cars per year
Inter. (wheelbase 100" to 114")	9/100,000 cars per year
Small (wheelbase less than 100")	12/100,000 cars per year

[Source is (2), p. V-5, apparently drawn from (12).]*/

8. Societal Costs of Injuries and Fatalities

a. Injury/fatality costs:

Only the social costs of AIS injury levels 4, 5, and 6 are included in the analysis. The costs of less severe injuries (AIS 1-3) are not considered. According to DOT, AIS 1-3 injuries account for less than 16 percent of the total societal costs of all injuries and fatalities. [(15), p. 27.]

b. Social costs per life (AIS level 6) or benefits per averted fatality:

The social cost per fatality is estimated to be $480,000 in 1981 dollars. This is the figure used by DOT in its 1975 study on societal costs of motor vehicle accidents [(16), p. 2]. The 1975 estimate is updated to 1981 by using the growth in nominal GNP per capita. [Figures on nominal GNP and population are taken from the 1981 Economic Report of the President (27) and the DRI February 1981 forecast (3), ~~p. 11.~~43, as well as the Reagan Administration forecasts for 1981 contained in (28), p. S-1.]

---

*/ The 1981 RA is unclear as to the passive belt usage rates incorporated in the above assumption. Going back to the original source in (12), it appears that they correspond to incremental usage of 45 percent over lap and shoulder belts, for a total usage rate of 57 percent. [See (12), pp. 19, 88] The actual data given in (12) for VW Rabbits are reductions of fatalities of 14 lives per 100,000 vehicles; it is unclear why this figure is reduced to 12 lives per 100,000 vehicles in the RA (2).

These estimates are very close to central estimates using the imputed value approach contained in a recent study by Martin Bailey [(21), p. 46], as is shown in Table A-1.*/

c. Injuries and Fatalities Combined:

I introduce a simplifying procedure to combine costs of injuries and fatalities. The key assumption is that introduction of passive restraints reduces fatalities (AIS 6) and severe injuries (AIS 4 and 5) in the same proportion. The assumption of proportional reduction in AIS 4, 5, and 6 appears realistic based on data given in (12), p. 85. Economic costs of injuries with different severity are shown in the 1977 RA [(15), p. 27]. The ratio of costs of all AIS 4-6 to costs of fatalities (AIS 6) is 1.22.

To obtain the benefits of prevented fatalities and injuries (AIS 4-6), I scale up the cost per fatality prevented ($480,000) by the ratio of total costs of AIS 4-6 to the total costs of fatalities, e.g., 1.22 x $480,000 = $585,000.

Total societal benefits of passive restraints are thus obtained by multiplying the number of fatalities prevented by $585,000.

9. Discount Rate

a. Materials and Services are discounted at a real rate of 7 percent. (16).

b. Fatalities and Injuries are discounted at a real rate of 5 percent (7 percent less the estimated growth in per capita real income and earnings).

---

*/ It should be noted that the cost per fatality concept does not take account of the ages of the persons whose lives are lost. A more accurate indication of the social cost of fatalities would be the value of person-days lost as a result of death. Because those who die from auto accidents are younger than those who die from many of the causes referred to in Table A-1, the average cost of a fatality from the figures reported in Table A-1 represents a relative underestimate of the average cost of fatalities due to auto accidents.

SENSITIVITY ANALYSIS FACTORS

To investigate the sensitivity of the cost-benefit results to the assumptions in the base case, the analysis was repeated using significantly higher and lower values for critical items. As can be seen in Table A-4, there are no major changes in the evaluation as a result of sensitivity analysis.

1. Incremental Resource Costs of Passive Restraints

	Low[a]	Base	High[b]
Cost	$30	$50	$70

[a] See discussion of costs in list of assumptions above. The $30 figure can be derived in two ways. Both assume that the capital costs are sunk costs. First, the updated table from the 1977 RA indicates that variable costs are $27. NHTSA's low estimate in the 1977 RA was $31 in 1981 prices. Thus a figure of $30 appears to be a reasonable "optimistic" cost.

[b] The high is obtained by taking NHTSA's high variable cost figure of $43 [(2), p. V-3] and adding $13.80 in R&D and retooling costs to yield $66, and rounding this up to $70. This figure also corresponds to GM's estimate in (2).

2. Incremental Consumer Costs (Excluding Insurance)

	Low[a]	Base	High[b]
Cost	$50	$60	$80

[a] This is NHTSA's value [(2), p. V-2]. This estimate apparently assumes operating costs to be negligible.

[b] This is the GM figure of $70 per vehicle [(2), p. V-2] plus $9 in operating costs, and rounding to $80.

3. Societal Costs of Fatalities

As discussed in A-1, the costs of fatalities used is the DOT value (16) updated to 1981 prices. This value is extremely close to Bailey's central estimate. High and low values are obtained by using Bailey's high and low figures from the study [(21), p. 46] shown at the bottom of Table A-1; and then marking these figures up by 1.22 to take into account the value of injuries prevented.

4. Insurance Costs

	Low[a]	Base	High[b]
Annual savings	$25	$30	$45
Present value savings	$187	$225	$338

[a] Takes base figure and adjusts for lower usage rate of passive belts, which yields $25.30.

[b] Takes base figure and adjusts for higher usage rate of passive belts.

5. Differences in Usage Rates

	Low[a]	Base	High[b]
Usage rate of Passive Belts (Relative to current usage with lap and shoulder belts.)	38%	45%	66%

[a] Incremental use in Chevettes [(12), p. 39].

[b] Incremental use in automatic belt equipped VW Rabbits over all cars in use on road [(12), p. 90].

6. Questions have been raised in the economics literature as to whether discounting of human life is appropriate [see Koopmans, (29)]. If we recalculate benefits due to lower injuries and fatalities without discounting the net benefits relative to the current rule are as follows (in millions of 1981 dollars):

Proposed Delay	-301
Delay and Reversal	1,461
Rollback	-6,181
Simultaneous 1983	3,478

Table A-3

Cost Benefit Analysis, Base Case Societal Costs (millions of 1981 dollars)

Option	Net Benefits Over Current Rule	Net Benefits	Gross Benefits	Costs
1 (Current)	0	10,005	11,098	1,093
2 (Proposed Delay)	-235	9,770	10,813	1,043
3 (Delay and Reversal)	1,117	11,122	12,222	1,100
4 (Rollback)	-4,512	5,494	6,093	599
5 (Simultaneous 1983)	2,622	12,627	13,939	1,312

Consumer Costs (millions of 1981 dollars)

Option	Net Benefits Over Current Rule	Net Benefits	Gross Benefits	Costs
1 (Current)	0	3,615	4,926	1,311
2 (Proposed Delay)	-165	3,449	4,701	1,251
3 (Delay and Reversal)	23	3,638	4,958	1,320
4 (Rollback)	-1,632	1,982	2,702	719
5 (Simultaneous 1983)	726	4,341	5,916	1,575

Note: In these calculations, "Costs" and "Gross Benefits" are measured relative to a fleet equipped with lap- and shoulder- belts with 12 percent usage rate. The figures apply to model years 1982 through 1985 for sales of 10 million cars per year.

Table A-4

Sensitivity Analysis Results

Societal Costs
(Net Benefits Over Current Rule, millions of 1981 dollars)

	Value of Fatality Prevented		Passive Restraint Resource Costs		Incremental Usage Rates for Passive Restraints	
Option	low	high	low	high	low	high
1 (Current)	0	0	0	0	0	0
2 (Proposed Delay)	-82	-508	-255	-215	-191	-368
3 (Delay and Reversal)	511	2,193	1,120	1,114	942	1,642
4 (Rollback)	-1,817	-9,303	-4,709	-4,314	-3,733	-6,849
5 (Simultaneous 1983)	1,092	5,342	2,709	2,534	2,179	3,948

Consumer Costs
(Net Benefits Over Current Rule, millions of 1981 dollars)

	Insurance Cost Savings		Passive Restraint Costs to Consumers	
Option	low	high	low	high
1 (Current)	0	0	0	0
2 (Proposed Delay)	-128	-278	-175	-145
3 (Delay and Reversal)	18	39	25	20
4 (Rollback)	-1,262	-2,744	-1,731	-1,435
5 (Simultaneous 1983)	561	1,221	770	638

Table A-5

Sensitivity Analysis for Worst/Worst/Worst Case */

Societal Costs (Net Benefits over Current Rule, millions of 1981 dollars)

Option	Net Benefits
1 (Current)	0
2 (Proposed Delay)	-41
3 (Delay and Reversal	+428
4 (Rollback)	-1,260
5 (Simultaneous 1983)	+800

Consumer Costs (millions of 1981 dollars)

1 (Current)	0
2 (Proposed Delay)	-108
3 (Delay and Reversal)	+15
4 (Rollback)	-1064
5 (Simultaneous 1984)	+473

---

*/ The "worst/worst/worst" takes the lowest usage rate for passive restraints, the lowest value per fatality prevented, the highest cost estimate for passive restraints, and the lowest insurance cost savings.

APPENDIX B

DISCUSSION OF EFFECTS ON THE AUTOMOBILE INDUSTRY

It is impossible to do a thorough analysis of the potential impact of the proposed delay within the limited period for public comment. However, order of magnitude impacts can be provided by looking at previous studies and at estimated costs of the standard. In what follows I will examine the impacts of imposing the original standard rather than delaying the implementation of the standard for the large automobiles that is proposed.*/

1. The key issue in judging the economic impacts of the proposal concerns the consumer valuation of the passive restraint. If the cost-benefit analysis described in Appendix A is correct, then consumers will benefit from early imposition of the passive restraint rule. The capital cost of automobile services will rise, but (because of reductions in insurance and fatality and injury costs) the operating costs will decline even more. Thus the total or "life-cycle" costs of automobile services will decline. [Estimates of the total costs of operating an automobile -- along with a breakdown between the major components -- are given in (22).]

2. Given that the total cost of automobile services declines, how will buyers perceive the economic impacts? At one extreme, a rational buyer would consider life cycle costs and find automobile ownership and operation more attractive, and would substitute automobile services for other goods and services. At the other extreme, consumers might completely discount any reduced insurance or injury costs -- in which case they would respond only to the increased capital cost.

3. The first view, the rational consumer, is embodied in the "theory of hedonic price indices" that the Bureau of Labor Statistics uses to correct car prices for quality changes. The second view -- examining only first cost -- is sometimes taken in superficial modeling of automobile demand response.

4. There is mixed evidence on the extent to which buyers use appropriate life-cycle calculations in making purchase decisions. Some analysts feel that buyers include future gains (such as those for reduced gasoline use or safety or savings in insurance costs) at too high a discount rate. Such a view lies behind proposals to subsidize energy conservation. On the other hand, large fleet buyers customarily perform a careful life-cycle analysis weighing of safety considerations.

---

*/ It is possible but tedious to judge the impact of all the alternatives by substituting the relevant cost figures for other options.

5. To estimate the effects on the automobile industry, I use as two extreme views (a) first, in which future reductions in fatality and injury costs and insurance costs just outweigh the increased capital costs; and (b) second, in which all future savings are ignored and only capital costs are considered by consumers. [Assumption (a) may be conservative because reductions in discounted insurance costs and fatality and injury costs are likely to be larger than the increases in capital costs.]

6. The impact on total sales and profits depends on the extent to which prices are marked up over costs and the price elasticity of demand for new automobiles.

7. Historically, there is considerable evidence that automobiles are priced as a markup over standard or normal costs. [See (23) and (24).] My best guess, then, is that transactions prices will rise in the order of $50 per vehicle as a result of the introduction of passive restraints. (The rise in the list price of the car should not be confused with the list price of an automatic belt.)

8. Modeling demand for automobiles poses the usual difficulties of obtaining reliable estimates for price elasticities. A reasonable estimate for the short-run price elasticity is -1.0. [The ITC staff report states, "The consensus estimate for the price elasticity of demand for autos is usually given as about -1.0." [(5), p. A-59] See also (6).] GM has apparently used a price elasticity of -1.0 in its economic analyses, as in (25).

9. According to these two extreme assumptions, the effect on the overall automobile market would be as follows. I estimated above that the consumer cost of passive restraints would be in the order of $50 per car. This cost would apply to approximately 1 out of 10 million new cars, for an average increase of $5 per car. This increase would apply to average car prices in the order of $8,500. [This latter figure is derived from (5), p. 58, updated to 1981 prices using assumptions drawn from the February 1981 DRI forecast in (3).]

10. Thus the overall impact on automobile sales would be a decrease in sales from 0.0 to 0.06 percent in model year 1982 depending on whether assumption 5(a) or 5(b) is used. The lower figure would arise if consumers judged that the savings in insurance costs and safety just balanced the added capital costs; while the higher number would arise if consumers ignored any potential savings in insurance and injury costs.

11. Estimates of the impacts on the share of different models requires estimates of the cross-elasticities of demand. While estimates of cross-elasticities are subject to larger uncertainties than are total elasticities, figures given in (6) allow an order of magnitude estimate of the impact of the passive

restraint rule. As noted above, retaining the present rule would be expected to reduce sales by 0 to 6,000 cars. Virtually the entire decrease would occur in large and intermediate car sales. Impacts on the subcompact market and on imports are expected to be extremely small.

12. The effect on sales and profits of automobile companies depends on the pricing assumption, the consumer perception of safety changes, and on the price elasticity. Assuming a price elasticity of -1.0, total revenues are likely to increase from 0.0 to 0.06 percent. Assuming that variable margin per car (i.e., average factory revenue less direct variable costs) is $1,500 per vehicle [(4), p. 69], automobile company profits are likely to lie in the plus or minus $10 million range.

References

(1) Federal Motor Vehicle Safety Standards; Occupant Crash Protection, 46 Fed. Reg. 12033, February 12, 1981.

(2) National Highway Traffic Safety Administration, Automatic Occupant Protection, Regulatory Analysis, FMVSS 208, February, 1981.

(3) The Data Resources Review of the U.S. Economy, February, 1981.

(4) Secretary of Transportation, The U.S. Automobile Industry, 1980, Report to the President.

(5) Certain Motor Vehicles and Certain Chassis and Bodies Therefor, Report to the President, USITC Publication 1110, December, 1980.

(6) Toder, Eric J. Trade Policy and the U.S. Automobile Industry (New York: Praeger, 1980).

(7) Survey of Current Business, June, 1980.

(8) U.S. Department of Commerce, Bureau of the Census, *Pollution Abatement Cost & Expenditures*, MA-200(77)-1 (1977).

(9) *Cost of Government Regulation Study for the Business Roundtable*, March, 1979.

(10) Weidenbaum, Murray L., *Business, Government, and the Public*, 2d ed. (New Jersey: Prentice-Hall, Inc., 1981).

(11) Hearing on Government Regulations Affecting the U.S. Automobile Industry, Committee on Commerce, Science & Transportation, January 21, 1981.

(12) Department of Transportation and the National Highway Traffic and Safety Administration, *Automobile Occupant Crash Protection*, Progress Report No. 3, July, 1980.

(13) Department of Transportation, *The Secretary's Decision Concerning Motor Vehicle Occupant Crash Protection* (1976).

(14) Federal Motor Vehicle Safety Standard No. 208, Occupant Crash Protection, 42 Fed. Reg. 34290, July 5, 1977.

(15) Department of Transportation, Supplemental Inflation Impact Evaluation, proposed amendment to Federal Motor Vehicle Safety Standard No. 208 (Occupant Crash Protection).

(16) Department of Transportation and the National Highway Traffic and Safety Administration, 1975 Societal Costs of Motor Vehicle Accidents, Washington, D.C., December, 1976.

(17) Robertson, L.S., "Car Crashes: Perceived Vulnerability & Willingness To Pay for Crash Protection," 3 Journal of Community Health 136-41 (1977).

(18) Department of Transportation, Economic Consequences of Automobile Accidents Injuries, Vol. 1, Automobile Insurance & Compensation Study, April, 1970.

(19) General Motors Corporation, Consumer Opinions Relative to Automotive Restraint Systems, Report No. 71-21p (Detroit, 1971).

(20) Miller, III, James C., and Bruce Yandle, eds., Benefit-Cost Analyses of Social Regulation (Washington, D.C.: American Enterprise Institute for Public Policy Research, 1979).

(21) Bailey, Martin J., Reducing Risks to Life (Washington, D.C.: American Enterprise Institute for Public Policy Research, 1980).

(22) Federal Highway Administration, Cost of Driving and Operating an Automobile (1976, 1977, 1979, 1980).

(23) Eckstein, O. and D. Wyss, "Industrial Price Dynamics," in O. Eckstein, ed., The Econometrics of Price Determination, Board of Governors of the Federal Reserve System (1972).

(24) Nordhaus, William, W. Godley & K. Coutts, Industrial Pricing (Cambridge University Press, 1978).

(25) General Motors Corporation, General Motors Position on Mandating Passive Restraints, NHTSA Public Meeting, May 19, 1975.

(26) Department of Transportation, Standard No. 208--Passive Restraint Amendment, Explanation of Rulemaking Action.

(27) *1981 Economic Report of the President.*

(28) White House, *The Economic Recovery Program*, February 18, 1981.

(29) Koopmans, Tjalling C., "Economics Among the Sciences," *American Economic Review*, March, 1979, pp. 1-13.

(30) Hartunian, N.S., C.N., Smart, M.S. Thompson, "The Incidence & Economic Costs of Cancer, Motor Vehicle Injuries, Coronary Heart Disease, & Stroke: A Comparative Analysis." 70 Am. J. Public Health 1249-60 (1980).

(31) *Automotive Occupant Protective Safety Air Cushion Expenditures/Benefit Study* (Michigan: The John Z. De Lorean Corporation, August, 1975).

(32) United States Regulatory Council, *The Automobile Calendar: Recent and Pending Federal Activities Affecting Motor Vehicles*, January, 1981.

(33) National Traffic & Motor Vehicle Safety Act of 1966.

(34) *The Future of the Auto in City Transportion,* (Harbridge House, Inc., May, 1980).

(35) United States Department of Labor, Informal Public Hearing on Proposed Standard for Occupational Exposure to Acrylonitrile (Vinyl Cyanide), April 4, 1978.

(36) Schultze, Charles L., *The Public Use of the Private Interest* (Washington, D.C.: Brookings Institution, 1977).

(37) *Regulation*, November-December, 1980.

(38) United States Senate, Chrysler Corporation Loan Guarantee Act of 1979, Report of the Committee on Banking, Housing & Urban Affairs, December 6, 1979.

(39) Statement of Nationwide Insurance Company, March, 1981.

(40) Nationwide Insurance Company, "Estimated Insurance Savings From Airbags," 1977.

(41) Statement of Allstate Insurance Company, March, 1981.

COMMENTS OF WILLIAM NORDHAUS ON NOTICE OF PROPOSED RULEMAKING ON FEDERAL MOTOR VEHICLE SAFETY STANDARDS OCCUPANT CRASH PROTECTION[1/]

DOCKET NO. 74-14, NOTICE 22, May 26, 1981

Executive Summary

This filing investigates whether proposed changes in a standard imposing passive restraints are economically justified. After examining evidence from this and earlier rulemakings, I conclude:

1. The current requirement to install automatic crash protection (FMVSS 208) will have substantial net benefits compared to current lap and shoulder belt usage. Using the Agency's data and basic methodology, the current rule, when phased in, will have net economic benefits of approximately $2.4 billion per year. For a steady state (one of the same size and composition as the 1984 fleet continuing in the future), the total discounted net societal benefits are $33 billion. A methodology that is more realistic than the Agency's indicates even larger net benefits of this rule.

2. The size of the net benefits indicates that the proposed rescission would be extremely costly to the nation. It would cost approximately $2.4 billion for every year of delay, and a total and indefinite rescission would impose costs on society of more than $30 billion for a steady state 1984 auto fleet. The costs of a rescission are 3-1/2 times the benefits.

3. In terms of injuries and fatalities, the steady state effect of rescission with the 1984 fleet would be to increase fatalities by approximately 6,400 per year, and increase moderate to critical injuries by at least 120,000 per year.

4. Among the other options (current rule, simultaneous March 1983, and reversal), the differences in net economic impact are of lesser magnitude. According to the analysis presented below, the reversal option is the preferred, followed by simultaneous March 1983, followed by the current rule.

1/ This updates an earlier filing, "Comments of William Nordhaus on Notice of Proposed Rulemaking on Federal Motor Vehicle Safety Standards," March 1981, sponsored by Allstate, Kemper, Nationwide, State Farm, and Travelers Insurance companies. The views are personal and do not represent the views of any of the above institutions. My professional background is set forth in Appendix E.

5. The analysis has been subjected to a range of sensitivity tests. There is no change in the ranking of alternatives under a plausible range of assumptions.

6. The estimated impact of the proposed rescission on the automobile industry is miniscule. There will be little or no improvement in the "health" of the domestic automobile industry from the proposed rescission. For this reason, nonregulatory considerations discussed in the notice (the effect on sales, the profits of the automobile companies, or freedom-of-choice arguments) should not, from an economic point of view, enter in this rulemaking.

7. A review of previous studies indicates that public education campaigns to increase belt usage are not effective. Consequently, there is no evidence that they are a cost-effective alternative to the passive restraint rule.

I. BACKGROUND FOR THIS RULEMAKING

On April 6, 1981, the National Highway Traffic Safety Administration (NHTSA) announced a delay of the passive restraint rule for large automobiles and proposed three alternative modifications to FMVSS 208 on automatic crash protection (see (1)):

1. "Reversal." The phase-in of the passive restraint rule would be changed so that small cars would be required to comply on September 1982; mid-size cars on September 1983; and large cars on September 1984.

2. "Simultaneous 1983." All car sizes would be required to comply on March 1983.

3. "Rescission." Rescind completely the automatic restraint requirements.

The alternatives are quite different in spirit. Alternatives 1 and 2 embody the philosophy that the automatic crash protection rule is basically sound, but that changes in the technique for meeting it, as well as changes in the fleet mix, require some fine-tuning of the phase-in.

Alternative 3, on the other hand, represents the opposite philosophy: it suggests that the automatic crash protection rule is burdensome, unnecessary, and not economically justified. Rescission implies tuning out rather than fine tuning the existing rule.

A review of the Notice (1), as well as other recent documents from NHTSA, indicate that the proposals are grounded in six key assumptions which have, according to NHTSA, been invalidated. The following summarizes the key issues, while a fuller discussion is given in subsequent sections.

1. Earlier analyses assumed a significant part of the fleet would be equipped with airbags. It is now generally assumed, however, that automatic seat belts will be used.

The effect of this change is two-fold. First, as experience with automatic belts is more extensive in small cars, it is reasonable to phase the passive restraints rule in more quickly for small cars. Second, as passive belts are considerably less expensive than airbags, relative to observed usage rates, it appears that the average cost of meeting the passive restraint rule would be reduced in light of this change.

2. The second change is that there has been an accelerated switch from large cars to smaller, less safe ones.

This change suggests two possible changes in the policy. First, it puts a greater urgency on accelerating the requirements for passive restraints in small cars. Second, because small cars are less safe, with fatalities per 100,000 vehicles per year as much as twice as large as in large cars, the shift implies that the requirement of passive restraints will be more cost-effective today than with the fleet mix anticipated in 1977.

3. The third change is that NHTSA's estimated costs of passive restraints have risen (even after correcting for inflation) since 1977. Thus, the cost of the automatic seat belt is estimated by NHTSA to have doubled since 1977, while the airbag cost estimate has slightly less than doubled.

Taken by itself, this increased cost of meeting the passive restraint requirement would suggest that the current rule is now less economical. On the other hand, when combined with the fact of a shift of techniques from the mix of airbag and automatic belt to the automatic belt only, the actual estimated cost of meeting the overall performance rule is lower today than in 1977. Thus, the change in the estimated cost of meeting the passive restraint rule would not appear to suggest a major change in cost-benefit results.

4. The fourth issue is the question of "the effect of current automatic belt designs on public acceptance and usage." ((1), p. 7) NHTSA argued at length in its Regulatory Impact Analysis for the large car delay that usage rates of passive belts were likely to be quite low. (6)

There appears to be some evidence that the 1977 estimate by the Agency of usage rates for passive belts was overly optimistic. However, since the last NHTSA analysis was completed, a new study of usage in Chevettes and Rabbits suggests that the best guess today is that the usage rate of automatic belts would exceed that of active belts by around 40 percent.[2] As will be evident from the cost-benefit analysis below, though this decline in the expected incremental usage of passive belts reduces anticipated benefits, it does not suggest that the passive restraint rule is economically unjustified.

5. A major issue in the earlier rulemaking this year was the state of the automobile industry. At that time, NHTSA stated that it was "concerned whether changed circumstances in the automobile industry may make the automatic restraints as now scheduled impractical" ((7), p. 12033).

The current proposal only discusses the state of the automobile industry obliquely. However, in press packages prepared at the time of the proposal, the economic effects of removing the passive restraint and other regulations were highlighted. A brief analysis of this issue, updated from my earlier filing, is contained in Appendix B. The analysis concludes that the effect of a rescission on the automobile industry has been exaggerated; will be minimal; and in any case, will be far outweighed by the benefits to consumers.

6. A final, and unspoken, change that might lie behind the rule is the view that the passive restraint rule is an unnecessary and wasteful regulation.

While the passive restraint rule undoubtedly will raise the first costs for automobile purchasers it must be emphasized that the rule is not just a minor nuisance regulation, like the height of toilet seats or the temperature at which live animals can be transported.

Rather, the passive restraint rule is, from an economic point of view, as important as any environmental, health, or safety rule on the books. If the estimates of the impact on fatalities and injuries are accurate, a rescission would be equivalent to repealing a law that cuts in half the homicide rate. It is equivalent to foregoing the medical advances that allowed the virtual elimination of death from tuberculosis over the last quarter century. According to some estimates, it is equivalent to repealing the Clean Air Act.

II. MAJOR ISSUES IN THE RULEMAKING

In weighing the costs and benefits of proposed changes in the automatic crash protection rule, there are three major and a number of minor issues to be considered. The major issues are: (1) choice of technology; (2) cost of installing automatic seat belts; and (3) usage rates. The other issues concern the effectiveness of public education campaigns, the state of the industry, and the broad philosophical question of government intervention in matters of automobile safety.

---

[2] Hereafter, we use the term "40 percent" as a shorthand for 40 percentage points.

A. Choice of Technology

As indicated above, manufacturers now state that automatic seat belts will be the predominant technology for meeting the passive restraint requirements. According to NHTSA, automatic belts would now be used in 99 percent of the fleet and airbags would be used in the remaining 1 percent. ((2), p. 2.)

B. Issues of Cost

The cost to the manufacturer and to the consumer of installing the automatic seat belt is a second major issue. In my earlier study, I reviewed earlier estimates and found that a consumer cost of approximately $60 per vehicle (in 1981 prices) seemed to be a reasonable figure.

During the recent rulemaking that resulted in the one-year delay, NHTSA received submissions from Ford and General Motors that, on average, estimated incremental costs of automatic belts to be $114. This figure includes $88 for manufacturers' cost, $20 for markup, and $6 for incremental fuel costs. The Agency accepted these estimates without any reservations.

Although it is obviously very difficult for an outsider to second-guess the Agency and the automakers on a technical issue of this kind, there are reasons to think that this figure is exaggerated.

The major reservation is the fact that automobile companies have a very strong incentive to engage in strategic estimates of costs. If the estimated costs are high enough, they may well persuade the Agency to rescind the rule. As this game is well understood by most agencies, it is puzzling to note that NHTSA appears to have forgotten the rules.

The data in the record support the "strategic" view of the belt costs. For example, the Agency has not adequately explained how the costs of automatic belts have more than doubled in constant dollars since 1977. This is particularly disturbing because the Agency has previously questioned the accuracy of the manufacturers' cost estimates. Thus, Secretary of Transportation Coleman found in 1976 the manufacturers' estimates of the costs of passive restraints to be "questionable." In particular, automaker cost estimates in the past have been based upon unconventional accounting techniques; in many cases automobile company estimates of costs of new technologies have been much higher than actual costs proved to be. See (13).

Indeed, it appears that the General Motors and Ford submissions have unwittingly provided evidence of a major inconsistency between their cost estimates and their estimated investment programs. The effect of alternative options on the capital programs of the major automakers can be obtained from their submissions in the large car rulemaking, (8) and (9). The following shows the present value of investments in passive restraints through model year 1985 under different implementation schedules:

	GM	Ford	Total
Current Rule	$331 million	$245 million	$576 million
Delay small and intermediate cars one year	316	234	550
Incremental saving from one year delay	$ 15 million	$ 11 million	$ 26 million
Incremental cost per vehicle			$ 3 per vehicle

These figures suggest that the capital savings are extremely small for a delay. Thus, assuming General Motors and Ford account for 70 percent of the U.S. market, a year's delay will leave 8 million cars unequipped with passive restraints for a per vehicle cost savings of $26 million, or $3 per car. In 1977, investment (in the form of amortization of research, development, and retooling) constituted one-third of the total cost of passive belts (see (15), Appendix tables). If the same proportion holds today, the resource costs would be $9 per belt. How $9 per car can be puffed up to $88 of manufacturers' cost is a major puzzle. This discrepancy indicates strongly that the automakers have exaggerated the costs by a considerable margin.

I use, for purpose of the following analysis, the Agency/manufacturer estimate of $114 per vehicle as the cost of the automatic belt. While using the Agency/manufacturer estimate, however, it should be noted that a considerably lower figure -- such as $60 -- is better supported by the record and by the auto companies' own publicly available data.

C. Issues Regarding Benefits

The central empirical question in this rulemaking concerns the extent to which the requirement to install automatic seat belts will raise overall usage rates among front-seat occupants. This question is of central importance because the major benefit from automatic seat belts arises because more passengers -- that is, more than the current 11 percent -- are likely to be restrained than today. This is an important empirical issue requiring careful, sound, and scientifically-based analysis, and because the appropriate way to "model" consumer reaction is at issue.

1. NHTSA's New Approach

Until very recently, it was NHTSA's view that automatic seat belts would raise seat belt use by a very considerable margin -- approximately 60 percent.

In the April 1981 final Regulatory Impact Analysis, accompanying NHTSA's one-year delay decision (6), however, NHTSA proposed a new line of argument and a novel methodology which suggested that incremental usage rates of automatic belts might be as low as 8 percent.

The new line of argument is that the current generation of automatic seat belts may be ineffective in achieving the purposes of the passive restraint rule -- increased belt usage. ((6), p. X-5.)

The Agency has also proposed a novel methodology for estimating the incremental usage rate in cars equipped with automatic seat belts: the so-called "multiplier effect." According to this approach, the introduction of automatic belts would "multiply" the rate of usage by a given factor. ((6), p. V-19.)

Apart from its embracing of this new methodology, however, the Agency did not cite any evidence in deciding to mandate the one-year delay indicating that the incremental usage rate of automatic belts would be anywhere near its low estimate of 8 percent.

2. Multiplier v. Additive Models

Given NHTSA's apparent reliance on its "multiplier effect" methodology, it is of central importance to consider whether this methodology or whether the earlier "additive" approach is more consistent with the available evidence.

a. The Agency's multiplier model assumes that the extent of use of automatic belts will be a multiplicative function of existing use. According to this model, belt use for each occupant group would approximately double.

b. The conventional additive model assumes that incremental use will be the same in all occupant groups.

It is clearly of great importance to this rulemaking whether the novel "multiplier" model has any empirical support. Attached in Appendix D are some simple statistical tests of the two models. Although the tests could be improved if more data were available, the conclusion of that analysis is that the additive model of usage of automatic seat belt usage is far superior to the multiplier model. Based on both survey data and reported state accident data in (6) and (10), the incremental usage in both these studies is better explained by the additive model than by the multiplier model.

3. Data on Incremental Usage

Given the superiority of the additive model, the question arises as to which of the different data to use. It is generally accepted that direct observation is superior to attitudinal studies. This leaves four studies:

a. Observed usage in VW Rabbits. These studies indicate that the incremental usage in Rabbits equipped with automatic belts is 45 percent. ((6), p. V-13.)

b. Usage in VW Rabbits involved in accidents. These studies indicate that the incremental usage in those involved in accidents is 29 percent. ((6), p. V-13.)

c. Surveys of usage in VW Rabbits and Chevettes. A study prepared for NHTSA by Opinion Research, but excluded from the last rulemaking, surveyed owners of both VW Rabbits and Chevettes. This study found that the reported difference in usage of persons in automatic-belt equipped and manual-belt equipped cars for Chevettes was 38 percent in the 1979 model and 39 percent in the 1980 model; while for the Rabbit incremental use was 43 percent and 41 percent, respectively. ((10), p. ix.)

d. The Opinion Research survey also used an "own control" technique explained in Appendix D. This made the more natural comparison of belt use by the same people in automatic-belt equipped cars and their second or prior-owned cars. For this group, incremental use was 44 percent for Chevettes and 56 percent for Rabbits. (*See* (11) and (10), p. ix.)

4. Discussion of the Studies

Taken as a whole, the four studies provide a coherent and convincing body of data to indicate that incremental belt use with automatic belts will be substantial. They also appear to answer several questions raised about the validity of the measurement techniques.

A first point concerns the Agency's assertion that U.S. designed automatic belts are of "poor design," implying that the incremental usage rate of the automatic belt in cars of U.S. design will be low: in fact, reported incremental usage rates in the Chevette of 38-39 percent are almost as high as those obtained in the VW Rabbit.

Second, the Agency and automakers contend that the interlock feature in the VW Rabbit is responsible for the high incremental usage rates. This is contradicted by the data. The Chevette had an interlock feature in the 1979 model, but not in the 1980 model. Yet, the incremental usage in Chevettes went up from 38 to 39 percent from 1979 to 1980. (10)

A third issue is whether the high use of automatic belts in Rabbits was due to the unusual nature of the group purchasing these vehicles, a problem known as "selection bias." Three aspects of the Opinion Research study indicate that selection bias does not lead to an overestimate of incremental belt use.

The first result draws on data on the own-control group. When owners were asked for their usage patterns in a second automobile or in a previously owned automobile, their responses indicated that belt usage increases by 44 percent for automatic-belt equipped Chevettes and 56 percent for automatic-belt equipped Rabbits. As explained in Appendix D, these results indicate that the demographic or selection biases are not a major factor in the high incremental usage of automatic belts in Chevettes or Rabbits.

Another form of "self-selection" might arise if persons purchasing them desired automatic belt protection. This appears inaccurate, as only 5 percent of Chevette owners and 12 percent of Rabbit owners requested automatic belts at the time of purchase. Indeed, 55 percent of Chevette owners did not even know that they had ordered a car with an automatic seat belt! ((10), p. 11.)

Finally, the study examines the determinants of belt use by different groups. After extensive empirical testing, they write:

> "We conclude that the difference in reported belt use must be accounted for by factors other than the ones related to education, income or any other demographic." ((10), p. 60.)

5. Conclusion

What is the best estimate for the incremental belt use in cars equipped with the current generation of automatic seat belts? The studies discussed above yield an estimated range of 29 to 56 percent as the estimated incremental usage. In the base case I will take the mid-point of the study that falls in the middle of this range -- that is the 41 percentage point increase in usage reported in the Opinion Research study -- as the incremental belt use for all cars.

For the pessimistic case, I use the data on incremental belt use observed in VW accident reports, 29 percent. For the optimistic case, I use the highest reported incremental use, the 56 percent increase using the own control technique for the Rabbit.

III. OTHER ISSUES

A. Effects of a Public Education Campaign

The Department announced its intention to undertake an intensive public edcuation campaign to increase active belt use. There are two separate issues in weighing such campaigns: Are they effective? Do they make the passive restraint requirement more or less economical?

1. Are Public Education Campaigns Effective?

Appendix C reviews the statistical evidence on five separate public education campaigns to promote more widespread use of manual seat belts on a local and national level. That survey concludes:

> The studies reviewed above lead to the conclusion that no methodologically sound study has been uncovered that indicates a statistically or practically significant impact of public education campaigns on manual belt use. (Appendix C, p. 2.)

2. Would an Effective Public Campaign Approach Invalidate the Passive Restraint Justification?

We can go further and ask how an effective public education campaign would modify the conclusions above about the economic impact of FMVSS 208.

The answer to this depends on a further issue: Would an effective campaign increase belt use more for cars with passive belts or active belts? There is no evidence that would allow answering the question. If we follow the additive model above, the campaign would raise absolute usage rates of manual- and automatic-belted occupants by the same amount. In this case, the net benefits of the passsive restraint standard would be the same with and without a public education campaign. Under NHTSA's unjustified multiplier model, the net benefits of a passive restraint rule would actually be higher after an effective public education campaign.

In summary, the best evidence indicates that an intense public education campaign would have no marked impact on the net economic benefits of a passive restraint standard.

B. Passive Restraints in the Broader Context

Although this filing is basically concerned with the economic aspects of a passive restraint rule, it cannot be ignored that the basic motivation for the proposal appears to be political rather than economic. The proposed rescission of the passive restraint rule was announced in conjunction with a large "auto package" in (34), and it should be seen as part of the Reagan Administration's "Regulatory Relief" program.

The basic economic philosophy underlying the Regulatory Relief program was laid out in the February 1981 Executive Order (28). In that Order, President Reagan adopted a cost-benefit framework for evaluating new major Federal rules. More specifically, the Order states that "Regulatory action shall not be taken unless the potential benefits to society from the regulation outweigh the potential costs to society." (Section 2(b).)

The Administration's basic viewpoint is taken in this analysis as well. While not proposing that a mechanical cost-benefit approach be taken to all decisions, it is central for achieving more efficient regulation that rules that do not pass a cost-benefit test should be scrutinized very carefully before they are issued. Similarly, rules that clearly pass a cost-benefit test should not be sacrificial lambs to a Regulatory Relief program.

In terms of this specific regulation, the idea that the government might force individuals to "buckle up" by the passive restraint rule would at first blush appear an unjustified meddling in individual decisions. On closer look, however, there are two bases for such an approach: (i) the government may choose to override individual decisions and (ii) there may be external effects (or "externalities") in traffic injuries.

There is little doubt that Federal, state, and local governments have a well established role in traffic safety. NHTSA was authorized by the 1966 Act to issue motor vehicle standards (33). The passive restraint standard ~~has~~ been reviewed and upheld in the Federal courts. The very rule that is subject to rescission here -- FMVSS 208 -- was reviewed and left intact by Congress in 1977 under a legislative veto provision. It should further be emphasized that Congress has not in any way changed the intent or content of the 1966 Act. Therefore, the question is not whether to override individual decisions, but whether such a standard appears reasonable and economically justified.

The issue of external effects of traffic injuries is more technical but presents an even more compelling case for government standards. It has long been recognized that government policies are required to offset the effects of externalities. Updating earlier studies to 1981, it appears that $15-$20 billion of economic costs will occur each year as a result of injuries and fatalities to front seat occupants (see Table A-2). Only one-half of these costs are internal to decisionmakers, the rest being borne by government or insurers through third-party payments. (See (18), p. 2.) If one-half of costs are thus external to victims, society has a very high stake in reducing the economic costs of injuries.

The key point is clear: 15 years after the basic highway safety statute was passed, manufacturers have not voluntarily provided automatic crash protection in any but a miniscule part of their production.

C. Insurance Savings

While there are cost savings from the proposed rescission, there will also be substantially higher levels of fatality and injury. Relative to a fleet equipped with passive restraints, the rescission would ultimately lead to an increase of about 6,400 fatalities and at least 120,000 moderate to critical injuries annually.

The Agency analysis has two very serious omissions in its examination of cost and benefits. It omits from the analysis of reduced benefits the economic savings from reduced fatalities and injuries; and it does not address possible savings in insurance costs to consumers.

In the earlier analysis, I used two different approaches: (a) societal cost-benefit analysis and (b) consumer cost savings. The first is the conventional approach, while the second is a way of highlighting those identifiable elements most visibly affecting consumers. Because the data on consumer cost savings are incomplete, that approach is not reanalyzed in this updated filing. However, a brief discussion of insurance issues follows.

When the predicted reductions in injures and fatalities are realized, there will be a reduction in consumer insurance costs from what they would otherwise be. According to data submitted by Nationwide, and making appropriate adjustments, there will be a savings of $20 per year per car equipped with automatic belts. Over the life of the vehicle, the present value of $20 per vehicle savings to consumers is approximately $150.

It should be noted that the Agency's analysis in the Final Regulatory Impact Analysis for the large car rollback was defective (see (6), pp. VII-1 ff). The Agency confused direct benefits to owners of cars equipped with passive restraints with indirect benefits to all insured vehicles, even though this distinction was clearly laid out in my earlier comment, p. 11. The Agency pointed out that, because insurance companies could not be sure that automatic seat belts were not being detached, they might be reluctant to give first party premium discounts.

Whatever the validity of this statement, it is irrelevant for the analysis. The installation of automatic seat belts with incremental usage rates of 40 percent will, according to NHTSA, lower fatalities of front seat occupants by approximately 20 percent and reduce injuries (AIS 2-5) by approximately 26 percent. As the associated medical and personal injury payments decline below what they otherwise would have been, first and third party premiums will follow. But the premium reductions will be spread across all insured autos, rather than be directed to the first party premiums of the owners of cars with automatic seat belts.

When the total insurance costs, not just first party premiums, are considered, the figures just presented are the appropriate numbers. The decrease in first party premiums will be smaller and will depend on numerous factors, including belt design, actuarial practices, and state laws.

Taking into account, then, consumer cost of the automatic belt, fuel cost, and insurance cost, the net impact of rescinding the rule will be to raise total discounted direct consumer cost around $35 per vehicle. This underestimates true costs as it omits noninsurance costs, lost wages, medical costs borne by the consumer, and pain and suffering.

IV. COMPARISONS OF OPTIONS

A. The Options Considered

The cost-benefit analysis presented here considers the four options considered in the Notice: the current rule, reversal, simultaneous 1983, and rescission.

B. Ranking of the Alternatives

Appendix A presents the details of a cost-benefit analysis of the four options. The results for the base case are shown in Table A-3 of Appendix A.

The major conclusion is that a rescission of the automatic crash protection rule would have extremely high societal costs. According to the base case assumptions -- which rely basically on NHTSA's data and methodology except for usage -- the net effect of the rescission is to impose net social costs of $33 billion.

Put in terms of the steady state costs and benefits (computed for full penetration of automatic belts into a fleet of the composition of the 1984 model year), the effect of rescission would be to reduce annual costs by approximately $1.2 billion while reducing benefits by approximately $3.6 billion, for a net steady state cost of $2.4 billion annually.

According to the cost-benefit calculations, the net benefits of the four options relative to the existing rule are as follows (all calculations are net benefits relative to the current rule, in 1981 prices, for the life of the automobiles of all model years from 1983 on):

Net benefits of alternative options relative to existing FMVSS 208, using NHTSA's assumptions and 41 percent incremental use of belts

	Option	Net Benefits (millions of 1981 dollars)
1.	Current Rule	0
2.	Reversal	+358
3.	Simultaneous 1983	+182
4.	Rescission	-32,912

The conclusions of the cost-benefit analysis are that the rescission has extremely high negative net societal economic benefits. The option with the highest net benefits is the reversal, while the simultaneous March 1983 option is slightly behind the reversal. The current rule places third in net benefits followed, by an enormous margin, by the rescission.

C. Sensitivity Analysis

It is important in performing analyses to consider alternative plausible values of the major variables. Appendix A contains the assumptions and results of a sensitivity analysis, and the high points will be reported here.

1. Earlier Analysis

One particular alternative approach is to examine the economic impacts using a set of parameters that would, in my judgment, better reflect the true economic impact of a passive restraint standard. Even though I have used NHTSA's analysis, except for the unacceptable usage model, I regard the estimate of belt costs and discount rate as unsatisfactory. As discussed above, a better figure for the belt cost would probably be that used in the earlier analysis, and that for the Rabbit, of $60. In addition, the 10 percent discount rate is considerably higher than is customarily thought to be appropriate by outside analysts.

This analysis uses the data on cost of belts and discounting of the March 1981 filing, but all the other data are the same as the base case analysis. The results are shown in Table A-4 of Appendix A. The rankings are the same as the base case, but the net benefits of the passive restraint rule are $69 billion. The benefits of the rule outweigh the costs, in this case, by a factor of 8.

2. Pessimistic Case

In a pessimistic case, assume that belt and fuel costs are $156 per vehicle, and that usage rates are lower than our best guess, at the 29 percent found in the lowest observation, the VW accident reports. In the pessimistic case, net benefits of FMVSS 208 fall significantly -- to $15 billion -- but the passive restraint rule is still economically justified by a large margin.

3. Break-even Analysis

A final sensitivity analysis is to ask what the break-even usage rate would be; that is, at what level of the incremental usage rate would the rule have costs that just equalled benefits?

According to the assumptions made here for the rescission option, the break-even incremental usage rates would be the following:

Option	Break-even incremental usage rate
Base case	11 percent
Original analysis	5 percent
Pessimistic case	16 percent

Note that the above break-even levels are based upon the relevant data used by the Agency in the most recent Regulatory Impact Analysis accompanying the Notice and in the Regulatory Impact Analysis used in the one-year delay decision. In addition, note that all three of these break-even levels are well below the lowest incremental usage observed in any survey or field reports.

4. Airbag Analysis

A final sensitivity analysis is to assume that the automobile companies use airbags to meet the passive restraint standard in a significant fraction of the fleet. For this analysis, I assume that all cars use airbags; and that the total cost of airbags, again per the Agency's assumption, is $425 per vehicle, reflecting the cost at high volume, as well as fuel penalty.

The results for this case are that the net economic benefits are even higher than in the base case, $47 billion for retaining the current rule over the rescission.

APPENDIX A

TABLES AND ASSUMPTIONS FOR COST-BENEFIT ANALYSIS

Table A-1.

Updated Estimates of the Cost Per Life Saved in Programs Supported, Operated or Mandated by Government

Program	Cost Per Life Saved ($)
Medical expenditure (21)*	
Kidney transplant	166,000
Dialysis in hospital	621,000
Dialysis at home	228,000
Traffic Safety	
Recommended for benefit-cost analysis by the National Safety Council* (21)	86,000
Estimate for elimination of all railroad grade crossings* (21)	249,000
DOT Cost of Accident Study (16)	480,000
Hartunian et al. (30)	260,000
Military policies* (21)	
Instructions to pilots on when to crash-land airplanes	61,000
Decision to produce a special ejector seat in a jet plane	10,350,000
Mandated by regulation (21)	
Coke oven emission standard, OSHA	7,300,000 to 256,000,000
Proposed lawn mower safety standards, CPSC	390,000 to 3,120,000
Proposed standard for ocupational exposure to acrylonitrile, OSHA	2,875,000 to 915,600,000
Imputed Value Approach (21)	
High	940,000
Intermediate	480,000
Low	220,000

Source: The estimates in this table are adjusted for the growth in nominal GNP per capita since the dates of the original data. In the case of estimates marked by (*), the adjustments were made from the dates on which the studies were published (rather than dates of the original data) and therefore underestimate the correct current values. Nominal GNP is assumed to grow at a rate of 11% in 1981.

Table A-2

Estimated Costs
of Motor Vehicle
Injuries and Fatalities
(billions of dollars)

Comprehensive Studies	Study Year Prices	1981 Prices
Hartunian et al., 1975 (30), all accidents	14.4	24.3
DOT, 1975 (15), front seat occupants only	11.2	18.9
Using Methodology of this Report		
Costs of injuries and fatalities (front seat occupants) (27,000 fatalities/yr, AIS 4-6 only)		15.8
Total (50,000 fatalities)		29.3

ASSUMPTIONS FOR COST-BENEFIT ANALYSIS: BASE CASE

1. Passive or automatic belts will be used by automakers to meet the passive restraint requirements. FMVSS 208 is a performance standard. As such, it requires occupants to be automatically protected in frontal collisions within specified limits and vehicle speeds. Any technology meeting the performance standard is acceptable; the rule does not require airbags.

2. Production levels and mix. NHTSA's "best guess" figures for sales and size mix are used for MY 1983 and MY 1984 (RA, Table III-F).[3] Sales and mix for 1985 and beyond are assumed to be the same as for 1984. This is the most conservative assumption since actual size mix in 1985 and beyond will continue to shift toward smaller cars. Since the number of fatalities and injuries averted by passive belts is smallest for large cars, this assumption will understate the benefits of the restraints. Total sales are assumed to be 11 million units each year (RA, Table III-F).

Note that the net benefits are only scaled up or down by larger or smaller total sales; there is no change in the size of the net benefits per vehicle for larger or smaller total sales.

Further note that if the analysis were truncated at any earlier point, say with model year 1990, the absolute size of costs and benefits would decline by a small fraction, but the ratio of benefits to costs would not change.

Values for sales by size (in thousands) and percentage breakdown by size are as follows:

Model Year and Percent of Total

	1983	%	1984	%	1985 and beyond	%
Large	535	4.9	70	0.6	70	0.6
Intermediate	5,905	53.7	6,370	57.9	6,370	57.9
Small	4,560	41.5	4,560	41.5	4,560	41.5
Total	11,000		11,000		11,000	

---

[3] For ease of exposition, the Final Regulatory Impact Analysis of April 1981, in (6), is referred to as the "RA."

3. Incremental passive or automatic belt consumer cost is assumed to be $114. This includes the $108 per unit consumer cost NHTSA has accepted based on its own and proprietary Ford and GM data plus NHTSA's estimate of $6 in discounted fuel costs over the lifetime of the car. (RA, IV-1, and RA, Appendix A, p. 8.) The $108 figure includes variable costs for both the restraints and vehicle modifications, incremental fixed costs including depreciation and amortization of facilities and tools, and mark-ups to consumer price. (RA, IV-1.) Although $114 of consumer costs probably overstates resource costs, we have no information on which to calculate resource costs, except the $3 per vehicle incremental capital cost.

4. Automobile lifetime is assumed to be 10 years. (RA, II-5.)

5. Fatalities avoided by use of passive restraints per year by vehicle size are derived from Figure V-1 (RA, V-16), fatalities by car weight. Base line fatalities are constructed using the formula on page V-17 of the RA, and the manual usage rates and vehicle weight distributions shown below:

Size	Weight (pounds)	Manual Usage Rate, % (RA, p. V-12)	Baseline front seat fatalities per year, no restraints, per 100,000 vehicles
Large	3,800	7.0	19.06
Intermediate	3,200	7.2	23.38
Small	2,200	12.9	35.40

The usage rates are NHTSA's estimates. The small car rate is an average of subcompact and compact rate, weighted by the expected MY 1983-MY 1984 sales mix given in Table III-A. (RA, p. III-3.) The 2,200 pound vehicle weight for small cars is the same weighted average of 2,000 pounds for subcompacts and 2,500 pounds for compacts. Weight by class was obtained by telephone from NHTSA staff. This weighted average was used to calculate fatalities from Figure V-1. This slightly understates fatalities and thus benefits.

Fatalities avoided per year at given usage rates are then calculated using the 50% effectiveness rate and the baseline fatalities and manual usage rates above.

In the previous analysis, reviewed in Appendix A of the RA, it was assumed for simplicity that total injuries and fatalities avoided over the 10-year life of the vehicle were spread evenly over vehicle lifetime. However, this is unrealistic, since the percent of total mileage driven is much higher for the first few years of a new vehicle's lifetime than in later years. Nearly half of total lifetime miles are travelled in the first three years. (RA, Appendix A, p. 8.) To correct for this bias, the figures of percent of total mileage per year used by NHTSA to calculate fuel costs from 1982-1991 were used for the distribution of injuries and fatalities avoided over the 10-year vehicle life span.

6. Social Costs of Injuries and Fatalities

(a) Injury/fatality costs:

Social costs of AIS injury levels 2-5 and fatalities are included. In the previous analysis reviewed in Appendix A of the RA only AIS injury levels 4 and 5 and fatalities were included. NHTSA explicitly stated it saw no reason to exclude AIS levels 2 and 3. (RA, Appendix A, p. 11.)

(b) Social costs per life or benefits per averted fatality:

The social cost per fatality is estimated to be $480,000 in 1981 dollars. This is the figure used by DOT in its 1975 study on societal costs of motor vehicle accidents ((16), p. 2). The 1975 estimate is updated to 1981 by using the growth in nominal GNP per capita. (Figures on nominal GNP and population are taken from the 1981 Economic Report of the President (27) and the DRI February 1981 forecast (3), p. 11.43, as well as the Reagan Administration forecasts for 1981.)

These estimates are very close to central estimates using the imputed value approach contained in a recent study by Martin Bailey ((21), p. 46), as is shown in Table A-1.

(c) Injuries and fatalities combined:

I introduced a simplifying procedure to combine costs of injuries AIS 4-5 and fatalities in the previous analysis which NHTSA extended for AIS 2-3. The key assumption was that introduction of passive restraints reduces fatalities (AIS 6) and injuries (4 through 5) in the same proportion. This assumption of proportional reduction in AIS 4-5 appeared realistic based on data given in (12), p. 85. However, it now appears the effectiveness rate of passive restraints in reducing AIS 2-5 injuries is .65 compared to .5 for fatalities. (RA, V-18.) Thus I now assume passive restraints reduce fatalities and injuries (AIS 2-5) in a ratio of 1 to 1.3. Economic costs of injuries with different severity are shown in the 1977 RA ((15), p. 27). The ratio of costs of all AIS 2-5 weighted by 1.3 plus AIS 6 costs to costs of fatalities (AIS 6) is 1.45.

To obtain the benefits of prevented fatalities and injuries (AIS 2-6), I scale up the cost per fatality prevented ($480,000) by the ratio of total costs of AIS 2-6 to the total costs of fatalities, e.g., 1.45 x $480,000 = $700,000.

Total societal benefits of automatic belts are thus obtained by multiplying the number of fatalities prevented by $700,000.

7. Discount Rate

(a) Materials and services are discounted at a rate of 10 percent. This is in accord with NHTSA's statement that 10 percent is the rate prescribed by the Office of Management and Budget to be used in such analyses. (RA, Appendix A, p. 9.)

(b) Fatalities and injuries are discounted at 8 percent. The reason for this procedure is that the discount rate of 10 percent applies to goods and services. As income or productivity per worker is rising 2 percent, the value per fatality or injury rises 2 percent relative to costs of goods and services. Therefore, fatalities and injury benefits are discounted at 10 - 2 = 8 percent.

SENSITIVITY ANALYSIS FACTORS

To investigate the sensitivity of the cost-benefit results to the assumptions in the base case, the analysis was repeated using significantly higher and lower values for critical items. As can be seen in Tables A-4 through A-7, there are no major changes in the economic evaluation of the alternatives as a result of sensitivity analysis.

1. Incremental Resource Costs of Passive Restraints

	Low[a]	Base	High[b]
Cost	$60	$114	$156

a. This was the base cost figure used in my March analysis. It is based on the 1981 RA's cost analysis plus incremental fuel costs. Discussion in the comment above suggests a low figure is more consistent with automakers' capital requirements than the base figure.

b. Automakers (Ford) high estimate plus $6 incremental fuel costs.

2. Incremental Usage Rates

Low[a]	Base	High[b]
29%	41%	56%

a. Lowest observed usage (VW accident reports)

b. Highest observed usage (VW own-control)

3. Discount Rates, percent

	Low[a]	Base
Fatalities, Injuries	5%	8%
Materials, Services	7%	10%

a. These values were used in my March filing.

4. Learning Curve. It is realistic to expect the cost of passive restraints to decline as automakers gain experience with their manufacture. This is supported by NHTSA's explanation of its accepting higher cost figures -- they cite one of the reasons for the considerably lower cost of VW Rabbits' passive restraints as being the design of the vehicle from the ground up to accept the system. Later model year vehicles are, of course, subject to this economy as well as other traditional learning-curve effects. As a rough, conservative approximation, belt costs in model year 1985 and following are assumed to lie 20 percent below earlier model years.

5. Airbags. An analysis was done assuming 100 percent of the new vehicles use airbags to meet FMVSS 208 requirements. High volume costs are assumed to be $400 per unit plus $25 increased lifetime fuel costs. ((2), p. 6, p. 7.)

Several different effectiveness rates for airbags are given in the RA. The effectiveness rate of 54% for AIS 5 and 6 injury levels reported by NHTSA from accident data is used in this analysis ((6), p. V-7). No information is given for AIS 2-4. It is assumed that the effectiveness rate of airbags on these injury levels are in the same proportion to the effectiveness rate for fatalities shown in the 1977 Analysis ((14), p. 28) for air cushions only. This is a conservative approach since it is based on zero manual lap belt usage.

These assumptions were then used to compute a total combined per fatality cost of $620,000. This is lower than the $700,000 figure used for automatic belts because of the assumed lower effectiveness rates of airbags on AIS 2-5 injuries than automatic belts. When comparing total benefits of airbags versus automatic belts it should be remembered that airbag benefits reflect a larger reduction in fatalities and a relatively smaller reduction in AIS 2-5 injuries than automatic belt benefits.

6. Update of My March 1981 Analysis. The final sensitivity analysis applies the base case discount and belt cost from that analysis: a real rate of 7 percent on services and materials, 5 percent (7 percent less estimated growth in per capital real income and earnings) on fatalities and injuries; incremental belt cost of $60 including fuel. These are still relevant values given the discussions above on upward biases in belt costs and probable learning-curve effects.

TABLE A-3

Cost-Benefit Analysis,
Base Case
(millions of 1981 dollars)

Option	Net Benefits Over Current Rule	Net Benefits	Gross Benefits	Costs
Current	0	32,912	46,187	13,274
Reversal	358	33,270	46,323	13,053
Simultaneous	182	33,095	46,262	13,167
Rescission	-32,912	0	0	0

Note: In these calculations, "Costs" and "Gross Benefits" are measured relative to a fleet with manual usage rates of 7%, 7.2%, 12.9% for Large, Intermediate, and Small cars, respectively. The figures apply for MY 1983 and following, assuming a steady state size mix and sales of 11 million from MY 1984 onward.

TABLE A-4

Sensitivity Analysis Results for Nordhaus March 1981 Analysis *
(millions of 1981 dollars)

Option	Net Benefits Over Current Rule	Net Benefits	Gross Benefits	Costs
Current	0	69,075	78,890	9,815
Reversal	264	69,339	79,037	9,698
Simultaneous	138	69,212	78,971	9,759
Rescission	-69,075	0	0	0

* This uses a 5 percent discount rate on fatalities, 7 percent on materials and services, and assumes a $60 resource cost for passive restraints, and a 41 percent incremental usage rate.

TABLE A-5

Sensitivity Analysis Results
(Net Benefits Over Current Rule, millions of 1981 dollars)

	Passive Restraint Resource Costs		Incremental Usage Rates for Passive Restraints		Discount Rate 5% fatalities 7% materials & services	Learning Curve *
Option	Low	High	Low	High		
Current	0	0	0	0	0	0
Reversal	253	439	318	408	369	358
Simultaneous	132	222	160	210	189	182
Rescission	-39,200	-28,022	-19,394	-49,810	-60,241	-35,192

* Learning Curve assumes a one-time 20% decrease in passive restraint costs after MY 1984.

TABLE A-6

Sensitivity Analysis Results
Worst/Worst Case *
(Millions of 1981 Dollars)

Option	Net Benefits Over Current Rule
Current	0
Reversal	400
Simultaneous	200
Rescission	-14,504

* The "worst/worst" takes the lowest observed incremental usage rate for passive restraints (29%) and the highest cost estimate for passive restraints, $156.

Discount rates are 8% for fatalities, 10% for materials and services.

TABLE A-7

SENSITIVITY ANALYSIS RESULTS: AIRBAGS*
(Millions of 1981 Dollars)

Option	Net Benefits Over Current Rule	Net Benefits	Gross Benefits	Costs
Current	0	47,418	96,905	49,487
Reversal	878	48,276	96,957	48,661
Simultaneous	441	47,859	96,947	49,088
Rescission	-47,418	0	0	0

* Assumes all vehicles are equipped with airbags at $400 per unit plus $25 increased lifetime fuel costs. ((2), p. 2.) See note 5, p. A-8 for other assumptions.

DISCUSSION OF EFFECTS ON THE AUTOMOBILE INDUSTRY

Given the unavailability of key data, it is impossible to do a thorough analysis of the potential impact of the proposed rescission within the limited period for public comment. However, order of magnitude impacts can be provided by looking at previous studies and at estimated costs of the standard. In what follows I will examine the impacts of keeping rather than rescinding the current standard. It is difficult to judge the impact of alternative phase-in patterns (alternatives 1 and 2) but they are unlikely to have any significant impact on the industry.

1. The first issue in estimating the effect of retaining the passive restraint standard is the effect on automotive company costs and on consumer costs. For this analysis, I have used NHTSA's earlier estimates that the cost to manufacturers will be $88 per vehicle. Consumer cost will be larger by the markup ($20 per vehicle) and discounted fuel cost ($6 per vehicle), according to NHTSA ((6)). NHTSA does not calculate insurance savings in this figure, whereas our estimate is that all first and third party insurance cost savings will be in the order of $20 per year, or $150 discounted, under the base case usage assumptions in Appendix A.

2. There are two different approaches, therefore, that can be taken to the consumer reaction to the passive restraint rule. The first, the so-called "first-cost" view, is that consumers discount any future costs or savings. In this view, the price of automobiles will rise $108 per vehicle as against an average retail price of $8,500 (from (5), p. 58 updated) -- an increase of 1.3 percent. At the other extreme, the discounted average cost of operating an automobile will decline approximately $36 ($150 in insurance cost savings minus $114 in belt and fuel cost), or 0.4 percent of initial cost. For simplicity, the latter will be treated as negligible.

3. Given that the total cost of automobile services declines while first-cost rises, how will buyers perceive the economic impacts? At one extreme, a rational buyer would consider life cycle costs and find automobile ownership and operation more attractive, and would substitute automobile services for other goods and services. At the other extreme, consumers might completely discount any reduced insurance or injury costs -- in which case they would respond only to the increased capital costs.

4. There is mixed evidence on the extent to which buyers use appropriate life cycle calculations in making purchase decisions. Some analysts feel that buyers include future gains (such as those for reduced

gasoline use or safety or savings in insurance costs) at too high a discount rate. Such a view lies behind proposals to subsidize energy conservation. On the other hand, large-fleet buyers customarily perform a careful life cycle analysis weighing of safety considerations.

5. To estimate the effects on the automobile industry, I use as two extreme views: (a) first, in which future reductions in fatality and injury costs and insurance costs just outweigh the increased capital costs; and (b) second, in which all future savings are ignored and only the automobile purchase price is considered by consumers.

6. The impact on total sales and profits depends on the extent too which prices are marked up over costs and the price elasticity of demand for new automobiles.

7. Historically, there is considerable evidence that automobiles are priced as a markup over standard or normal costs. (See (23).) This is consistent with NHTSA's view that retail prices will be marked up $20 over cost.

8. Modeling demand for automobiles poses the usual difficulties of obtaining reliable estimates for price elasticities. A reasonable estimate for the short-run price elasticity is -1.0, while the long-run elasticity is usually thought to be around -0.5. See (5) and (15).

9. Thus, the overall impact on automobile sales would be a decrease in sales from 0.0 to 1.3 percent, or 0 to 143,000 vehicles in the first year of installing passive restraints, depending on whether assumption 5(a) or 5(b) is used. The lower figure would arise if consumers judged that the savings in insurance costs and safety just balanced the added capital costs; while the higher number would arise if consumers ignored any potential savings in insurance and injury costs. In the long-run, with a long-run elasticity of -0.5, the effect on sales would be in the order of 0 to 71,000 vehicles. This estimate compares with GM's estimate in (8), Appendix B, p. 5, of sales losses of 100,000 per year to MY 1985, or about 1 percent of total sales. GM's estimate appears somewhat exaggerated.

10. After a possible transition period, it is unlikely that there will be any substantial impact on the market shares of different model sizes.

11. The automobile industry has argued in its filing for the large-car delay (see (8) and (9)) that imposing these would significantly harm sales. It must be emphasized that these assertions were not based on any empirical data, econometric models of the industry or published academic studies. They should, therefore, be taken as unsubstantiated.

12. The effect on sales and profits of automobile companies depends on the pricing assumption, on the consumer perception of safety changes, and on the price elasticity. Assuming a long-run price elasticity of -0.5, total revenues are likely to increase from 0.6 to 1.3 percent. Assuming that variable margin per car (*i.e.*, average factory revenue less direct variable costs) is $1,500 per vehicle ((4), p. 69), the change in automobile company profits from imposing the standard is likely to lie in the plus or minus $100 million per annum range.

THE EFFECTIVENESS OF PUBLIC EDUCATION EFFORTS TO ENCOURAGE USE OF MANUAL SEAT BELTS

In its Notice, the Department has announced preparations for "an intensive public education campaign to induce the public to use their safety belts." The Notice suggests that the campaign would affect not only new cars "but also all other belt-equipped vehicles on the road today" and would constitute "an important contribution to vehicle safety."

This appendix reviews the major published studies to investigate whether public education campaigns are an effective alternative for obtaining the benefits that implementation of Standard 208 offers.

A review of the literature turns up no methodologically adequate study that public education efforts have a significant impact in increasing usage of manual seat belts.

1. A 1968 advertising campaign by the National Safety Council used the equivalent of over $51 million in public service time and space in various media. Based on a national survey of 2,500 adults before and after the campaign, there was no statistically significant change in stated usage (29).

2. A 1969 campaign in Toronto, Canada utilized radio, television, and other approaches. The use of safety belts in "collision-involved vehicles" did not change significantly from the levels before the campaign (42).

3. In 1972 the Insurance Institute for Highway Safety employed award-winning television announcements that showed visually the impact of automotive accidents on persons not wearing seat belts. L.S. Robertson et al. analyzed the impact such announcements had on the usage of manual seat belts of an experimental group in comparison to a monitored control group. Over a period of nine months, the television messages were shown with a frequency equivalent to the frequency in a national television advertising campaign costing $7 million. A comparison of belt use by drivers who viewed the announcements and a control group revealed that the television campaign "had no effect whatsoever on safety belt use." The difference between the usage rates for the experimental and control groups, averaged over 15 periods, was -0.13 percentage points for males (with a standard deviation of 1.93 percentage points), and -0.94 percentage points for females (with a standard deviation of 1.91 percentage points). These results indicate that the effects of the campaign were neither statistically nor practically significant. (24)

4. In 1972, a radio, television, and newspaper campaign was conducted in three communities in California. A study by G. A. Fleisher, of the University

of Southern California, found that during the campaign, usage rose in the no-treatment and intensive-exposure communities, but stayed the same in the moderate-exposure community. After the campaign, usage fell to pre-campaign levels in all three communities. (31)

5. In 1977, a public education campaign was conducted in Grand Rapids, Michigan to increase manual belt use. A statistical study, based upon actual observations of belt use, found that observed usage of active belts was 0.2 percentage points greater in Grand Rapids, Michigan than in Milwaukee, Wisconsin where no such campaign had been conducted. Such a difference is within the bounds of sampling error. (32.)

The studies reviewed above lead to the conclusion that no methodologically sound study has been uncovered that indicates a statistically or practically significant impact of public education campaigns on manual belt use.

A further point concerning the relevance of these studies should be noted. The relevant question for the current rule is: would an effective public education campaign increase belt use more in cars equipped with automatic or manual belt use? There is no reason from existing studies to believe that an effective public education campaign would increase use of belts less in cars equipped with automatic belts than in cars equipped with manual belts.

EVIDENCE ON THE RELATIVE MERITS OF THE ADDITIVE AND MULTIPLIER MODELS OF THE EFFECTS OF AUTOMATIC BELTS ON BELT USE

The key empirical issue in this rulemaking revolves aroung the incremental usage of seatbelts after passive restraints are required. There is no doubt that the incremental usage is very high for occupants of the VW Rabbit. The issue is whether such high incremental usage would also be found in other automobiles or demographic groups.

There are two separate questions: First, is the incremental use an additive or multiplicative function of base use? Second, are the observations on incremental use biased because of self selection?

These questions can be usefully analyzed with the following simplified model. The use of seatbelts in population group j for automatic-belted cars is a function of a number of determining variables:

$$(1) \quad u_j = f(z_j, A_j) + e_j$$

where

u_j = percent of group j using seatbelts

z_j = characteristics of group j (age, sex, education)

A_j = variable equal to 0 if a manual-belt equipped car

and 1 if automatic-belt equipped car.

e_j = random error terms

j = different groups in a survey or observation study,

e.g., it might be all VW Rabbit owners.

The two hypotheses concern the way that the variable A enters. The multiplier model states:

$$(2M) \quad f(z_j, 1) = (1+b)\, f(z_j, 0) + e_j$$

while the additive model states:

$$(2A) \quad f(z_j, 1) = c + f(z_j, 0) + e_j$$

In (2M) and (2A) *b* and *c* are constant parameters.

While there are an infinite number of alternative models, these two are the only ones suggested up to this time.

TABLE D-1

RESULTS OF COMPARISON OF MULTIPLIER AND ADDITIVE MODELS

(Entries labelled "A" indicate Additive model (2A) has lowest squared error, while "M" indicates Multiplier model (2M) preferred.)

Group:	PREFERRED MODEL (Ratio of summed squared errors of multiplicative to additive model in parenthesis)	
State accident data	A (2.21)	
	Chevette	Rabbit
Age		
Own control	A (7.6)	A (5.9)
Other control	M (0.4)	A (3.0)
Education		
Own control	A (35.)	A (43.)
Other control	A (3.0)	A (3.7)

Source: (6), p. v-14 and (11). Own control compares behavior of respondent in second or prior auto. Other control compares behavior relative to control group of owners of manual-equipped Chevettes and Rabbits.

A full-scale test of the two hypotheses was not possible within the scope of the comment period. A more limited test could be performed by asking which model best fits the data for those data sets where we have more than one observation group. The statistical technique was a simple nested least squares procedure. More precisely, it is asked whether the sum squared errors $\Sigma_j (\hat{u}_j - u_j)^2$ was minimized by model (2A) or (2M).

There were two data sources for these estimates: state accident data and the recent Chevette/Rabbit survey data. Within the latter, we estimated for age and education, using own control or different control groups. This makes a total of nine different comparisons.

As can be seen, the statistical tests indicate the additive model is preferred to the multiplier model in 8 of 9 comparison groups. The sample number of groups is too small to make significance tests with great confidence, but by normal criteria the estimates are overwhelmingly in favor of the additive model.

A second statistical issue, aside from the question of whether the multiplicative model or additive model is superior, is whether the estimates of incremental belt use are reliable. The major source of potential problems arise from biased parameter estimates.

More specifically, if the variable representing the effect of the automatic belt, A_j, is correlated with the error term, e_j, then biased coefficients can arise. Such a correlation could arise if a common third factor (such as age) was responsible for both the random error (i.e., the unexpectedly high belt use of a group) and for choice of a car with an automatic belt.

In general, experimental design to remove biases of this kind is difficult. The survey by Opinion Research (10), however, used an extremely ingenious technique for overcoming possible bias, the technique of "own control." Own control uses the behavior of the same individual in different situations to remove the potential for biased coefficients. More technically, it estimates the difference in behavior of an observation with all characteristics identical (because questions are asked of identical individuals), but with the A_j variable taking the different value. By using the technique of own control, when combined with the additive model, it is possible to purge the estimates of bias due to a correlation between demographic variables and choice of an automobile with automatic belt. Thus the only variable which varies is whether the respondent is in a Chevette or Rabbit with an automatic seat belt vs. in a car with a manual belt. Subject to the errors of sampling variation, the effects of being in a car with an automatic seatbelt can be estimated without bias.

It has not been possible to estimate a full model for the incremental usage rate using the own control technique. Results from the unpublished tabulations (11) of the Opinion Research study, shown in tables collating Questions 18 and 20 for automatic belt owners and 16 for manual-belt owners, provide evidence on this question. The evidence suggests that other estimates of incremental usage may be biased downwards: the behavior of the own control group shows that incremental usage is 5 percent more in GM Chevette and 15 percent more in the VW Rabbit than the difference between automatic and manual-belted Chevettes or Rabbits. For example, the incremental usage of owners of VW Rabbits is 56 percent over their usage in their second or prior car, as against 41 percent for owners of manual VW Rabbits.

The evidence on the own control group, then, indicates that there is not a significant upward bias from the selection of VW or Rabbit owners as individuals on which to estimate incremental belt usage. Indeed, the estimates of incremental usage are higher for groups where the control is own behavior rather than for owners of the same automobile with manual belts.

APPENDIX E

PROFESSIONAL BACKGROUND OF AUTHOR

My professional background is the following. I received a B.A. from Yale in 1963 and a Ph.D. in Economics from M.I.T. in 1967. In 1967 I joined the staff at Yale University and am currently the John Musser Professor of Economics at Yale University. From 1977 to 1979, I was a Member of the President's Council of Economic Advisers with responsibilities for regulatory and microeconomic policies. As part of those duties, I organized and served as first chairman of the Executive Branch Regulatory Analysis Review Group until February 1979.

My professional publications have been on numerous subjects, including economic growth, inflation, the productivity slowdown, energy and resource use, technical change, and regulation.

I have served on committees of, consulted for, or prepared reports for groups such as the National Academy of Sciences, several Departments of the Federal Executive, and several Congressional committees.

REFERENCES

1. National Highway Traffic Safety Administration, Notice of Proposed Rulemaking, Occupant Crash Protection, Docket 74-14, Notice 22, April 1981.

2. National Highway Traffic Safety Administration, Office of Plans and Programs, Regulatory Impact Analysis for Proposed Rule, April 10, 1981.

3. The Data Resources Review of the U.S. Economy, February 1981.

4. Secretary of Transportation, The U.S. Automobile Industry, 1980, Report to the President.

5. Certain Motor Vehicles and Certain Chassis and Bodies Therefor, Report to the President, USITC Publication 1110, December 1980.

6. National Highway Traffic Safety Administration, Plans and Programs, Final Regulatory Impact Analysis, Amendment to FMVSS 208, April 1981 (analysis for delay in large cars).

7. Federal Motor Vehicle Safety Standards; Occupant Crash Protection, 46 Fed. Reg. 12033, February 12, 1981.

8. General Motors Corp., filing on Notice relating to (7), March 1981.

9. Ford Motor Company, filing on Notice relating to (7), March, 1981.

10. Automatic Safety Belt Systems Owner Usage and Attitude in GM Chevettes and VW Rabbits (1980 Models), prepared for N.H.T.S.A. by Opinion Research Corporation, DOT HS-805 797, February 1981.

11. Computer tabulations for study cited in (10), Label: PRT003, Opinion Research Corp., Princeton, N.J., dated November 11, 1980 and November 14, 1980.

12. Department of Transportation and the National Highway Traffic Safety Administration, Automobile Occupant Crash Protection, Progress Report No. 3, July 1980.

13. Department of Transportation, The Secretary's Decision Concerning Motor Vehicle Occupant Crash Protection (1976).

14. Federal Motor Vehicle Safety Standard No. 208, Occupant Crash Protection, 42 Fed. Reg. 34290, July 5, 1977.

15. Department of Transportation, Supplemental Inflation Impact Evaluation, proposed amendment to Federal Motor Vehicle Safety Standard No. 208 (Occupant Crash Protection), 1977.

16. Department of Transportation and the National Highway Traffic Safety Administration, *1975 Societal Costs of Motor Vehicle Accidents*, Washington, D.C., December 1976.

17. Robertson, L.S., "Car Crashes: Perceived Vulnerability & Willingness to Pay for Crash Protection," 3 *Journal of Community Health* 136-41 (1977).

18. Department of Transportation, *Economic Consequences of Automobile Accidents and Injuries*, Vol. 1, Automobile Insurance & Compensation Study, April 1970.

19. General Motors Corporation, *Consumer Opinions Relative to Automotive Restraint Systems*, Report No. 71-21p (Detroit, 1971).

20. Miller, James C., III and Bruce Yandle, eds., *Benefit-Cost Analyses of Social Regulation* (Washington, D.C.: American Enterprise Institute for Public Policy Research, 1979).

21. Bailey, Martin J., *Reducing Risks to Life* (Washington, D.C: American Enterprise Institute for Public Policy Research, 1980).

22. Federal Highway Administration, *Cost of Driving and Operating an Automobile* (1976, 1977, 1979, 1980).

23. Eckstein, O. and D. Wyss, "Industrial Price Dynamics," in O. Eckstein, ed., *The Econometrics of Price Determination, Board of Governors of the Federal Reserve System* (1972).

24. Robertson, L.S., *et al.*, "A Controlled Study of the Effect of Television Messges on Safety Belt Use." *American Journal of Public Health* 64, 1974, pp. 1071-80.

25. General Motors Corporation, *General Motors Position on Mandating Passive Restraints, NHTSA Public Meeting*, May 19, 1975.

26. Department of Transportation, Standard No. 208 -- Passive Restraint Amendment, Explanation of Rulemaking Action, 1977.

27. *1981 Economic Report of the President*.

28. White House, *The Executive Order on Federal Regulation*, February 17, 1981.

29. R.H. Bruskin Associates, *Seat Belt Usage Remains at Low Level Despite $51 Million Ad Effort* (New Brunswick, N.J.: R.H. Bruskin Associates, 1969).

30. Hartunian, N.S., C.N. Smart, M.S. Thompson, "The Incidence and Economic Costs of Cancer, Motor Vehicle Injuries, Coronary Heart Disease, and Stroke: A Comparative Analysis." 70 *Am. J. Pub. Health* 1249-60 (1980).

31. Fleischer, G.A., *An Experiment in the Use of Broadcast Media in Highway Safety: Systematic Analysis of the Effect of Mass Media Communications in Highway Safety* (Department of Industrial and Systems Engineering, Los Angeles: University of Southern California, 1976).

32. Robertson, L.S., "Auto Industry Belt Use Campaign Fails," Insurance Institute for Highway Safety, August, 1977.

33. National Traffic & Motor Vehicle Safety Act of 1966, 15 U.S.C. § 1381, *et*. *seq*.

34. White House, *Actions to Help the U.S. Auto Industry*, April 6, 1981.

35. United States Department of Labor, Informal Public Hearing on Proposed Standard for Occupational Exposure to Acrylonitrile (Vinyl Cyanide), April 4, 1978.

36. Schultze, Charles L., *The Public Use of the Private Interest* (Washington, D.C.: Brookings Institution, 1977).

37. *Regulation*, November-December, 1980.

38. Weidenbaum, Murray L., *Business, Government, and the Public*, 2d ed. (New Jersey: Prentice-Hall, Inc., 1981).

39. Statement of Nationwide Insurance Company, March 1981.

40. Nationwide Insurance Company, "Estimated Insurance Savings from Airbags," 1977.

41. Statement of Allstate Insurance Company, March 1981.

42. Ontario Department of Transport, *The 1969 Seat Belt Campaign: An Analysis of the Mass Communication Program and its Influence on Seat Belt Usage Among Ontario Drivers* (Toronto: Ontario Department of Transport, 1970).

STATEMENT OF BRIG. GEN. ROBERT F. McDERMOTT (RETIRED), UNITED SERVICES AUTOMOBILE ASSOCIATION, SAN ANTONIO, TEX.

General McDERMOTT. Sir, let me start up, if I may, since Lowell has referred to my rank, with a little perspective and background.

I left the Air Force after 29 years of service, and my last assignment was as Dean of the faculty at the Air Force Academy. I was there for the first 10 graduating classes. At the time of my departure, I noted that the number of cadets and graduates killed in automobile accidents equaled exactly the number of graduates who had been killed in air crashes or in combat in Southeast Asia. I noted that statistic as I went on, then, into the insurance industry.

Following up on just the Air Force statistics alone, the number of Air Force personnel killed in automobile crashes each year is greater than the number killed in air crashes and greater than those who die from all diseases. So it is a problem for the military as well as for the Nation.

As the CEO of a company, I first took note of these figures in early 1970 when it was reported that 56,000 highway deaths had occurred, and that was the equivalent of all those who died in combat in Southeast Asia. In one year, we were having the equivalent of wartime deaths that extended over the duration of the conflict.

When the energy crisis came along in the early 1970's, and we went to the 55-mile-per-hour speed limit, the frequency of accidents and the severity, from the speed being cut back, went down, and the fatalities dropped down into the 40,000 to 44,000 range. In the last couple of years, the severity started to go up, and I took note of that, as small cars came onto the marketplace in the pursuit of fuel economy.

Very recently the IIHS, that Dr. Haddon heads up, released a study—my insurance company gave great publicity to this, we sent copies of the study to 1¼ million policyholders—that compared the bodily injury frequencies in all types of cars, foreign and domestic. One of the things we noted of significance was the fact that Japanese cars were not as safe as American cars. In fact, of the 20 worst cars on the list, 14 were made in Japan. We also noted what people expected, that you were twice as safe in a large car as in a small car.

The small cars are here to stay in the interest of fuel economy, and the problem is how to make them safer. Our cars are safer than foreign cars. U.S.-produced cars are safer than foreign cars, but they can be made much safer by such things as the airbag.

We have a public health problem on our hands. I have equated it to the polio problem I remember a generation ago. But actually polio, which was of great concern to the Nation in the 1950's, at the time the Salk vaccine came along, only killed 4 percent of the people who at that time were being killed in automobile crashes. So this is a much more serious public health problem than even polio.

It is much more serious than aircraft accidents. The tragic accident a couple of weeks ago here in Washington that killed 78 people should be equated to the fact that we are killing 140 people every single day in automobile accidents. They are dispersed across the Nation, and they don't get our attention, but they deserve our attention. That is why we appreciate Senator Danforth for taking the leadership in bringing this public health issue to some kind of decision.

We have been frustrated in the insurance industry that the opportunities and the options for people to buy airbags or automatic seatbelts have not been made available. You can buy them in Europe, and you can't buy them in the United States.

I would aline myself with Senator Byrd, and perhaps both of you, in wishing that these passive restraints would be made available through the free market system. They aren't, and out of frustration the insurance industry supported the rule that has been rescinded, and out of that same frustration we will support any kind of legislation that will make these safety features available in our automobiles to stop the slaughter on the highways.

I thank you for the opportunity to participate.

[Statement of General McDermott follows:]

STATEMENT OF
ROBERT F. McDERMOTT
CHAIRMAN AND CHIEF EXECUTIVE OFFICER
UNITED SERVICES AUTOMOBILE ASSOCIATION
BEFORE THE
SUBCOMMITTEE ON TAXATION AND DEBT MANAGEMENT
OF THE COMMITTEE ON FINANCE
UNITED STATES SENATE
IN SUPPORT OF S.1887
JANUARY 28, 1982

Mr. Chairman and members of the Subcommittee, I am Robert F. McDermott, Chairman and Chief Executive Officer of the United Services Automobile Association, or, as it is commonly known, USAA. USAA is a member-owned cooperative composed of more than one million active duty and former military officers. It is the nation's ninth largest automobile insurer. I am appearing today on behalf of my company, and as a member of NAII's Board of Governors.

In my position as Chief Executive Officer of a large insurer, I have the misfortune of witnessing the tragic results - both in human suffering and economic loss - emanating from the carnage which takes place each day on our roads and highways. The cold statistics bear grim testimony to the fact that we are dealing with a public health problem of the first magnitude, just as polio was a generation ago. Let me elaborate:

- -- More than 50,000 Americans died, and over two million were injured, in automobile accidents during 1981
- -- Traffic accidents are by far the leading killer of our nation's young people.
- -- The economic loss to our nation produced by these accidents in 1981 has been estimated to be in excess of fifty billion dollars.

The recent crash here in Washington of an Air Florida jet, with the loss of 78 lives, captured nationwide attention. I would ask you to contrast that tragedy with the fact that an average of 140 people lose their lives in automobile accidents each and every day. One can well imagine the panic that would spread if the airline industry experienced such grim statistics.

During the past few weeks USAA has initiated a nationwide informational campaign to focus the attention of our members, and the American public, on ways in which they can better protect themselves in automobiles. We believe that this program is clearly within the spirit of the "corporate volunteerism" called for by President Reagan.

A major element in our campaign is the publication of the results of a new study which essentially compares the crashworthiness of numerous domestic and foreign-made cars.

This study by the Insurance Institute for Highway Safety (IIHS) and its companion organization, the Highway Loss Data Institute, is based on information from the claims records of ten major insurance companies which insure almost half of the nation's private passenger automobiles. It also draws on information contained in the federal government's Fatal Accident Reporting System. It confirms what we have intuitively known for many years -- that small cars are less crashworthy than large cars. More importantly, however, it reveals that 14 out of 20 cars with the worst injury claim frequency records are made in Japan. It has been our strong conviction that this is information that the public has a need - and a right - to know.

I am submitting for the record a copy of an informational booklet distributed at our recent press conference, along with a copy of a WALL STREET JOURNAL message which we recently published.

There is no escaping the fact that small cars are here to stay. The task which confronts all of us is to seek to assure that they are made safer in the years ahead. Unfortunately, the seat belts presently installed in cars, despite enormous educational efforts to induce Americans to "buckle up," have not proven effective. It has been estimated that nearly ninety percent of the occupants of automobiles fail to follow this advice.

The technology now exists which would enable us to save an estimated 9,000 lives, and countless of thousands of injuries, each year. Passive crash protection, and more specifically air bags, are, in our opinion, the single most important step which can be taken to protect the American public. The regretable fact, however, is that it is impossible to obtain such protection even on an optional basis in cars sold in this country. I would contrast this with Mercedes-Benz advertisements appearing in Europe which state that the air bag is "an idea whose time has come."

I submit that we can no longer afford to remain oblivious to the enormity of this most serious public health problem. I commend Senator Danforth for developing what I believe to be an ingenious solution. Some may argue that the costs of his proposal may be too great, but I submit that they pale by comparison to the human suffering, and over 50 billion dollars in annual economic loss, emanating from automobile accidents.

We urge the subcommittee to give serious consideration to Senator Danforth's proposal and to other appropriate measures which will protect the American motoring public.

USAA
News Release • United Services Automobile Association • San Antonio, Texas 78288

WASHINGTON D.C., January 5 -- One of the nation's largest automobile insurers, United Services Automobile Association (USAA), today released a special report on car safety comparisons to its policyholders. Among other things, the study shows that American-made cars are generally safer than Japanese-made cars in the same size group.

The San Antonio-based insurance firm published the safety comparison to provide information to its more than one million policyholders.

"Our policyholders frequently express concerns about automobile safety," said USAA president Robert F. McDermott, "and when this information became known to us we felt a responsibility to make it available to them. We are not trying to persuade them to drive particular cars, only providing information to consider in researching their buying decisions."

Of the 19 cars (78-80 models) with the best safety records, all are domestics. Of the 17 with the worst experience, 13 are Japanese-made. "The safety advantages of American-made cars should be made known," said McDermott.

The publication cites conclusions drawn from real-world collision data, not from crash-test simulations. The findings are based on studies by the Insurance Institute for Highway Safety (IIHS) and the Highway Loss Data Institute, non-profit research organizations which analyze the actual claims experience of major insurance companies and data from the federal government's Fatal Accident Reporting System.

(CONT.)

For Further Information Contact: Patricia Sprowls, (512) 690-4428

In presenting the comparisons, the report underscores previous evidence that small cars are generally less crashworthy than large ones. The IIHS study goes on to show that occupants of small subcompact cars are more than twice as likely as people in full-size cars to die in single-vehicle crashes.

USAA's publication acknowledges that small cars are here to stay. "We felt compelled to let our policyholders know that current technology exists to make these cars safer without sacrificing energy efficiency," said McDermott.

Available safety features described are automatic belts, non-lacerating windshields, child restraints, airbags and cushioned interiors.

Pointing to crashes as a major American health hazard which results in an average of 1000 deaths each week, McDermott acknowledged that his company has a vested interest in improved crashworthiness. "As a life and casualty insurer, USAA certainly wants to minimize losses due to vehicle crashes. Our policyholders also have a vested economic interest in that minimizing claims expense holds down insurance rates. Most important to all of us, however, is the potential for reducing death and serious injury."

USAA, a member-owned cooperative for military officers, is the nation's ninth largest automobile insurer. The USAA Group includes a life insurance company, an investment management company and a satellite communications company.

-30-

SUGGESTED HEAD: Major auto insurer offers crash safety comparison

USAA
Robert F. McDermott President
Brig Gen USAF (Retired)

UNITED SERVICES AUTOMOBILE ASSOCIATION

Washington, D.C. News Conference -- January 5, 1982

Text of Remarks by Robert F. McDermott, Chairman and Chief Executive Officer

Good Morning . . .

You have probably thumbed through the press kit and read the release, so I am sure you can begin to see the significance of the information we are providing today.

I think you would agree that these comparisons on crashworthiness are startling, particularly since they come from "real-world" experiences, rather than laboratory crash simulations.

As a life and casualty insurer, USAA is concerned. We certainly want to minimize losses due to vehicle crashes. Our policyholders also have a vested economic interest in that minimizing accident loss costs holds down insurance rates. But most important to all of us is the potential for reducing death and serious injury by working to see that the automobiles Americans drive are made safer in the first place.

It's obvious that driver safety programs are important and should never cease. But what might not be so obvious is that many accidents which cause death or injury -- for whatever reason -- would be far less lethal if automotive manufacturers in this country and abroad constructed their products in a safer way, using already existing technology to build in such safety features as automatic seatbelts, non-lacerating windshields, child restraints, airbags and cushioned interiors.

United Services Automobile Association USAA Building • San Antonio, Texas 78288
(A Reciprocal Interinsurance Exchange)

We hope that by making these studies available today and on a long-term basis, American consumers will begin considering safety factors in their automotive buying decisions, and that the auto makers will respond to the demands of the market place as they did when their customers began demanding more fuel-efficient cars in the wake of the energy crisis.

It's important to note here that we are strong believers in President Reagan's "corporate volunteerism" policies and are not seeking direct government intervention in increasing automotive safety standards.

Parenthetically, however, I should tell you that USAA, as a member of the National Association of Independent Insurers, is a party to the lawsuit brought by NAII against the National Highway Traffic Safety Administration, seeking the reinstatement of the federal requirement that American auto makers install either airbags or automatic seatbelts in all of their new models, beginning in 1983. This lawsuit does not seek to add new government regulation to the automobile industry. Rather it asks the reimposition of the seatbelt/airbag regulation which was issued in 1977 in response to continually climbing death and injury rates in automobile crashes and the fact that the auto makers had failed to build in such passive restraints voluntarily.

Nevertheless, what we are talking about today is not increased government regulation of an already ailing industry. Instead, we are simply saying that cars can be made safer. We believe consumers -- and that means you and I -- ought to know which cars are safer than others. We believe the concept of marketing auto safety is one which consumers will respond to, just as they now respond to the marketing of fuel efficiency.

I have already mentioned some of the items which could be added to make automobiles safer. You have in your press kits a brochure published by the U.S. Department of Transportation -- the National Highway Traffic Safety Administration -- on a special Research Safety Vehicle developed by DOT.

This brochure details a number of other safety features which could be utilized in new car design. Putting these features into the car is simply a matter of design, for the most part.

Obviously, small cars are here to stay because of their fuel efficiency. But, as the study we are releasing today shows, small cars are far more deadly in accident situations because they are so much lighter than larger cars -- to achieve maximum fuel efficiency -- and therefore don't stand up as well in a collision.

The statistics are chilling -- you are twice as likely to die in a one-car accident if you are driving a small, subcompact auto than if you are driving a full-size car.

So, the quest is to make small cars, in particular, much safer. The Research Safety Vehicle (RSV) was designed with this in mind. It is a subcompact utilizing a Honda Accord 4-cylinder engine which, even with the added safety features, provides an estimated 29 miles-per-gallon in urban driving and 37 miles-per-gallon on the highway.

It is already entirely possible to build a safe, attractive and fuel-efficient small car which is also affordable. The combination of those features -- safety, attractiveness, economy and affordability -- should make almost everyone happy.

The challenge now is to get those kinds of cars built on a mass-production basis.

To do that, we are today embarking on a long-term public information campaign to increase the consumer's awareness of the relative safety of existing cars and to seek their market place support in urging auto makers to include in new car designs more and more of these safety features.

We believe you can sell safety as a marketing practice. It is an intangible to be sure, but fuel economy is something of an intangible, too. Neither safety nor fuel economy have the flashy appeal of wire wheels, which incidentally cost more than an airbag. But, the American public has shown that it will make buying decisions based on fuel economy -- and that is the reason for the proliferation of small cars on the roads today. We think this same informed buying public will be seeking out the safer cars, just as it now seeks the more fuel-efficient cars.

When you realize that more than 1,000 people die in automobile accidents every week and that that number makes automobiles the biggest killers next to cancer, then you begin to see the enormity of the problem.

American-made cars are already safer than Japanese-made cars. But the Japanese have proven themselves over the years to be not only excellent technicians but very responsive to the desires of the market place. You may be sure that Japanese auto makers will be working to make their cars safer so that they can retain or increase their market share. The American auto makers have an edge now. We commend Detroit for this advantage, and urge the Big Four auto makers to incorporate even more safety features into their new designs.

The insurance industry has traditionally been a leader in finding ways to prevent or reduce catastrophic losses. I submit to you that 1,000 deaths per week is a catastrophe. The dollar costs and, more important, the human costs, are staggering. They don't have to be this bad. It's estimated that some 9,000 lives per year could be saved simply by adding airbags to cars. I wonder how many lives could be saved if the full range of safety features already developed could be built into new cars?

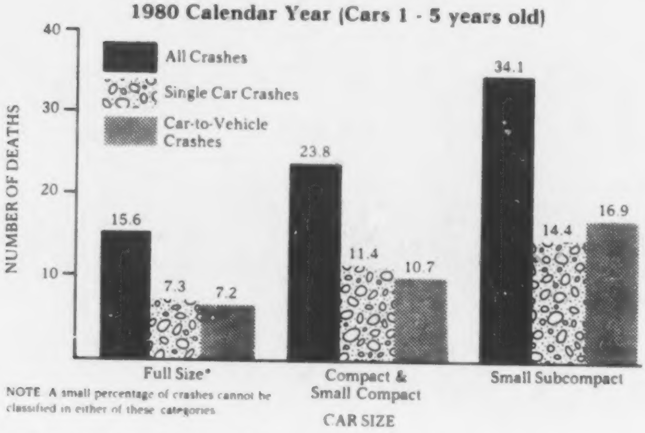
We just might find out -- if the public responds to this issue and demands safer cars from the auto makers.

Let me repeat our thesis one more time: Cars can be made safer . . . Americans need to know which cars are safer to drive than others . . . and safety is a marketable commodity.

Thank you very much.

DEATHS PER 100,000 REGISTERED CARS
by Car Size and Crash Type

1980 Calendar Year (Cars 1 - 5 years old)

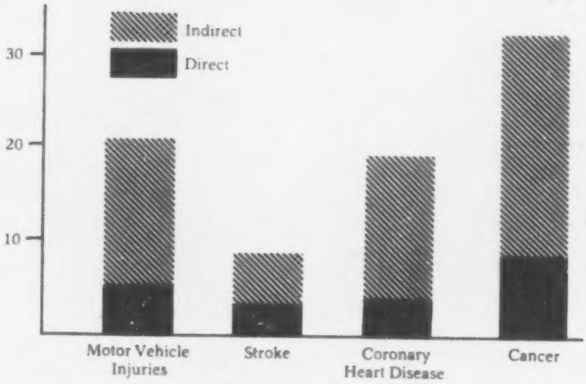


NOTE A small percentage of crashes cannot be classified in either of these categories

Source Insurance Institute for Highway Safety 1981

ESTIMATED DIRECT AND INDIRECT COSTS ASSOCIATED WITH INCIDENCE OF CANCER, CORONARY HEART DISEASE, MOTOR VEHICLE INJURIES, AND STROKE IN 1975

(In Billions of 1980 Dollars)



Source Insurance Institute for Highway Safety 1981

A MESSAGE TO THE AMERICAN CAR BUYING PUBLIC

Americans are dying for better gas mileage.

More than 51,000 people lost their lives and some 3.5 million others were injured in automobile accidents last year. That's an average of 140 deaths each day! Imagine the panic that would spread if that many people died daily in airline crashes.

Small cars are twice as likely as large cars to be involved in fatal single vehicle crashes.

In these fuel efficient times, smaller has become better—but not necessarily safer. In the past few weeks, the Insurance Institute for Highway Safety (IIHS) has published studies based on information from the claims records of ten major insurance companies, which insure almost half of the nation's private passenger vehicles, as well as national data from the federal government's Fatal Accident Reporting System. These studies show the frequency of death and injury in many different makes, models and sizes of cars involved in accidents.

Even when small cars crash with small cars, occupants are killed or injured more frequently than in crashes between two larger cars.

The IIHS studies reveal significant differences between the relative safety of large cars versus small cars—a result that shouldn't surprise anyone. The surprise is that significant differences exist between the different makes and models of the smaller cars themselves.

In general, small American-built cars have better insurance injury claims records than imports.

It's interesting to note that 9 out of 10 "smaller" cars with the lowest injury claims frequency are American made. While 8 out of 10 with the highest injury claims frequency are Japanese made. (SEE CHART FOR FIGURES.)

RELATIVE INJURY CLAIM FREQUENCY
SMALL CARS, 1978-80 MODELS
(A relative frequency of 100 is the average for all cars)

COMPACT & SMALL COMPACT

Make	Body	Relative Frequency
Oldsmobile Cutlass	S.W.	65
Oldsmobile Omega	4 Dr.	66
Lincoln Versailles	Spec.	74
Buick Century	S.W.	76
Chevrolet Malibu	S.W.	78
Pontiac Lemans	4 Dr.	79
Oldsmobile Cutlass	4 Dr.	80
Buick Skylark	2 Dr.	80
Mercury Zephyr	S.W.	80
Audi 5000 (G)	4 Dr.	80
Buick Century	4 Dr.	83
Chevrolet Citation	4 Dr.	83
Pontiac Lemans	S.W.	84
Chevrolet Malibu	4 Dr.	86
Ford Granada	4 Dr.	88
Buick Skylark	4 Dr.	89
Ford Fairmont	S.W.	90
Pontiac Lemans	2 Dr.	92
Mercury Monarch	2 Dr.	92
Oldsmobile Cutlass	2 Dr.	93
Buick Century	2 Dr.	93
Mercury Monarch	4 Dr.	96
American Concord	S.W.	97
Chevrolet Malibu	2 Dr.	97
Pontiac Phoenix	4 Dr.	98
Chevrolet Citation	2 Dr.	98
Pontiac Grand Prix	Spec.	98
Buick Regal	2 Dr.	100
Ford Fairmont	4 Dr.	101
Mercury Zephyr	4 Dr.	102
American Concord	2, 4 Dr.	102
Ford Granada	2 Dr.	103
Plymouth Volare	2 Dr.	107
Toyota Cressida (J)	4 Dr.	108
Chevrolet Monte Carlo	Spec.	109
Ford Fairmont	2 Dr.	111
Dodge Aspen	2 Dr.	112
Pontiac Firebird	Spec.	113
Chevrolet Camaro	Spec.	113
Mercury Zephyr	2 Dr.	120
Ford Thunderbird	Spec.	121
Toyota Celica Supra (J)	2 Dr.	128

SUBCOMPACT & SMALL SUBCOMPACT

Make	Body	Relative Frequency
American Pacer	S.W.	81
VW Dasher (G)	S.W.	87
VW Rabbit (A/G)	2 Dr.	90
VW Dasher (G)	2 Dr.	91
Honda Accord (J)	4 Dr.	93
Mercury Bobcat	S.W.	97
Datsun 210 (J)	S.W.	100
Honda Accord (J)	2 Dr.	100
Datsun 510 (J)	S.W.	104
Ford Pinto	S.W.	106
Dodge Omni	4 Dr.	106
Toyota Corona (J)	4 Dr.	108
Plymouth Horizon	4 Dr.	108
Volkswagen Scirocco (G)	2 Dr.	110
American Spirit	2 Dr.	110
Chevrolet Chevette	4 Dr.	110
Datsun 510 (J)	2 Dr.	112
Pontiac Sunbird	2 Dr.	112
Mazda GLC (J)	S.W.	113
Mazda 626 (J)	2 Dr.	115
Chevrolet Chevette	2 Dr.	119
Honda Civic (J)	S.W.	119
Ford Pinto	2 Dr.	120
Plymouth Horizon	2 Dr.	120
Toyota Celica (J)	2 Dr.	120
Buick Skyhawk	2 Dr.	120
Chevrolet Monza	2 Dr.	121
Mercury Capri	2 Dr.	122
Ford Fiesta (G)	2 Dr.	[illegible]
Dodge Colt, 4WC (J)	2 Dr.	128
Datsun 310 (J)	2 Dr.	128
Ford Mustang	2 Dr.	128
Oldsmobile Starfire	2 Dr.	128
Toyota Corolla (J)	2 Dr.	130
Mercury Bobcat	2 Dr.	134
Plymouth Champ (J)	2 Dr.	134
Datsun 210 (J)	2 Dr.	135
Honda Civic (J)	2 Dr.	135
Mazda GLC (J)	2 Dr.	139
Honda Prelude (J)	2 Dr.	140
Dodge Omni	2 Dr.	142
Plymouth Arrow (J)	2 Dr.	148
Plymouth Sapporo (J)	2 Dr.	149
Datsun 200SX (J)	2 Dr.	150
Toyota Corolla Tercel (J)	2 Dr.	153
Fiat Brava (I)	2 Dr.	156
Dodge Challenger (J)	2 Dr.	162

All cars are American-made unless otherwise indicated. J = Japanese, G = German, I = Italian. Sports cars are excluded.

Source: Highway Loss Data Institute (Results not reported for cars on which insufficient data are available.)

Naturally, many factors are involved in the incidence of auto accidents. Driving behavior and highway conditions certainly come into play. But the inescapable fact is that a major cause of injuries when those accidents occur is the overall construction of the car itself—and the safety features, or rather lack of safety features, built into it.

14 of the 20 cars with the worst injury claims frequency are made in Japan.

Furthermore, the studies indicate that Japanese small subcompacts have a death rate, on the average, 34 percent higher than the same size American-built cars.

What we're addressing here is not just an economic problem, but a serious public health problem. One that is as serious today as polio was a generation ago.

Small cars are here to stay, and the technology exists to make them safer.

Americans are, literally, dying because they drive cars that provide better gas mileage. We're advocating passive crash protection—like the padded dashboards we currently have, the non-lacerating windshields the Europeans have, and the air bags the auto industry has developed, but is not installing. These devices would protect us, without taking away our cherished freedom, the same way pasteurization and the polio vaccine protect our lives.

It's time the auto industry took a closer look at protecting our lives in their cars.

Robert F. McDermott

Robert F. McDermott
Chief Executive Officer
United Services Automobile Association
San Antonio, Texas

USAA

insurance
institute
for
highway
safety

the highway loss reduction

Status Report

Vol. 17, No. 1

January 5, 1982

A Special Issue

Car Size, Deaths Linked; Small Imports Found Worst

Deaths per registered vehicle in the smallest cars on the road – subcompacts and small subcompacts – are *twice as high* as in the largest cars. No matter what kind of crash whether frontal, single-vehicle, rollover, ejection, car-to-car, or car-to-other-vehicle, the number of deaths per registered small car is alarmingly high.

Small cars as a group have extremely high death and injury rates. Within the group, some small cars are markedly *less* crashworthy than others. In particular, the group of Japanese-made small subcompacts accounts for more deaths per registered vehicle than domestic models in their size group.

Researchers have known for years that people in smaller, lighter cars are injured more often and more severely than occupants of larger, heavier cars. Small cars have less structure, mass, and size to absorb crash energy; as a result higher, more injurious forces can reach their occupants in crashes. Moreover, when two small cars crash, the likelihood of occupants being killed or seriously injured is far greater than when two large cars crash.

As early as 1971, the Insurance Institute for Highway Safety was conducting crash tests to demonstrate these increased hazards for occupants of small, light cars. Since then, figures on actual deaths per registered vehicle have underscored even more forcefully the hazards of small cars.

The number of subcompacts and small subcompacts on the road has increased dramatically in the last few years, and is likely to increase further. With fuel prices high and automobile efficiency at a premium, there is little reason to think Americans will reverse their trend toward buying small, light vehicles instead of larger, safer ones. This special issue of *Status Report* focuses on the high numbers of deaths in small cars, and it examines the vital need for implementing *already available technologies* to reduce the number of people who are killed and injured every day in crashes of their subcompacts and small subcompacts.

On The Inside

- **SMALLEST CARS** have highest number of deaths per registered car in all kinds of crashes. . . . p. 2
- **JAPANESE-MADE CARS** found less crashworthy than American-made in the same size group. . . . p. 6
- **INDICATIONS THAT JAPANESE** may upgrade crashworthiness of their vehicles. . . . p. 7
- **STATE POLICE FILES** show further hazards of small cars. . . . p. 8
- **TECHNOLOGY EXISTS** to make *all* small cars more crashworthy. . . . p. 9
- **INSURANCE DATA** show comparative injury claims experience. . . . p. 11

The Insurance Institute for Highway Safety is an independent, nonprofit, scientific and educational organization. It is dedicated to reducing the losses—deaths, injuries and property damage—resulting from crashes on the nation's highways. The Institute is supported by the American Insurance Highway Safety Association, the American Insurers Highway Safety Alliance, the National Association of Independent Insurers Safety Association and several individual insurance companies.

Number of Deaths Highest in Smallest Cars

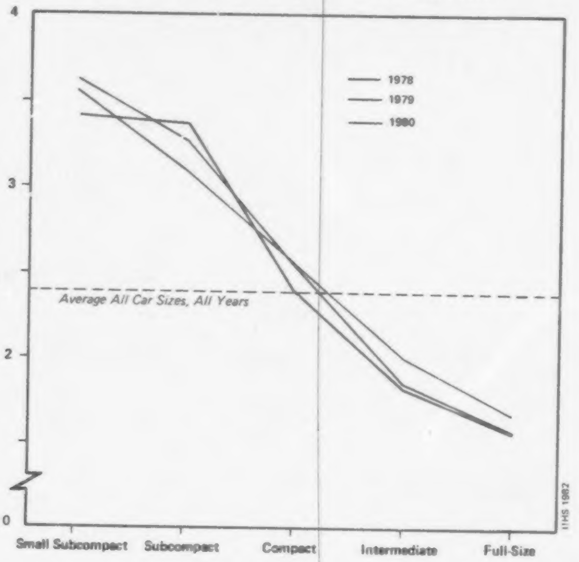
The Institute's comparison of car sizes shows 1.6 passenger car occupant deaths per 10,000 registered full-size cars* one to five years old in 1978-1980. For small subcompact cars, the number of deaths is more than twice as high – 3.5 per 10,000 cars (Figure 1).

Frontal crashes account for more than half of all passenger car occupant deaths in the United States. The number of deaths per registered small subcompact in these crashes is twice the rate for full-size cars. In all kinds of frontal crashes – single-vehicle, car-to-car, and car-to-other-vehicle – the number of deaths per small car registered is far higher than for larger cars (Figures 2 and 3).

In car-to-car crashes of all types, the discrepancy in number of deaths per car registered for large and small cars is even greater – almost three times as great in small subcompacts as in full-size cars. In side impacts, the number of deaths per car registered is 90 percent higher in the small cars.

(Cont'd on page 5)

Figure 1
Passenger Car Occupant Deaths per 10,000 Registered Cars
By Car Size, Cars 1-5 Years Old in Calendar Years 1978-1980



---

* In this publication, the Institute uses five passenger car size groups, defined as follows: **Small Subcompact** – cars with wheelbases less than or equal to 96 in.; **Subcompact** – cars with wheelbases 97-101 in.; **Compact** – cars with wheelbases 102-111 in.; **Intermediate** – cars with wheelbases 112-120 in.; **Full Size** – cars with wheelbases greater than 120 in.

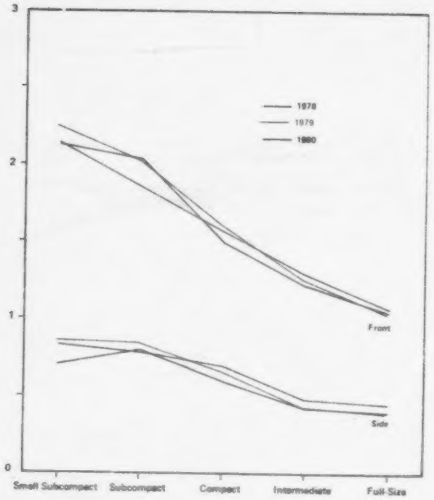


Figure 2
Passenger Car Occupant Deaths
Per 10,000 Registered Cars
By Car Size and Direction of Impact
Cars 1 to 5 Years Old
In Calendar Years 1978-1980

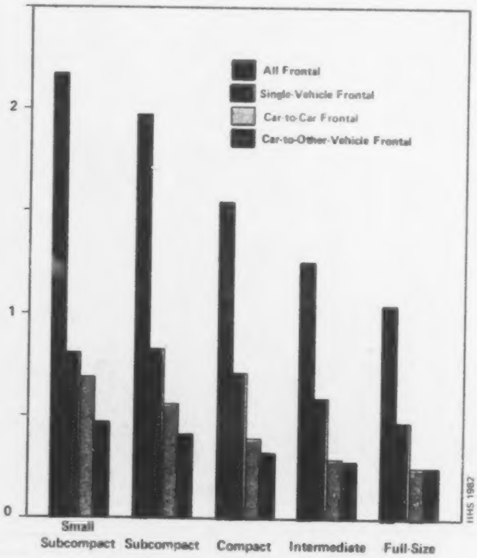


Figure 3
Passenger Car Occupant Deaths
Per 10,000 Registered Cars
In Frontal Crashes
By Car Size and Crash Type
Cars 1 to 5 Years Old
In Calendar Years 1978-1980

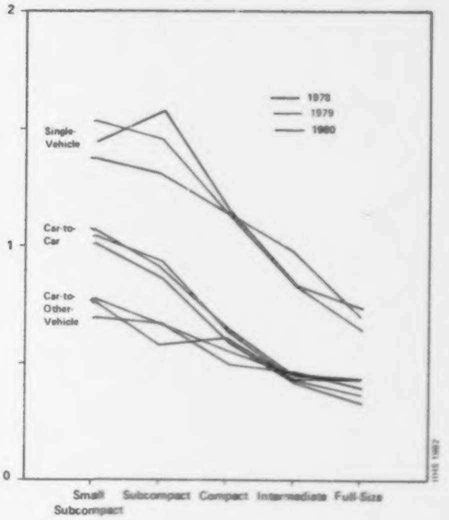


Figure 4
Passenger Car Occupant Deaths
Per 10,000 Registered Cars
By Car Size and Crash Type
Cars 1 to 5 Years Old
In Calendar Years 1978-1980

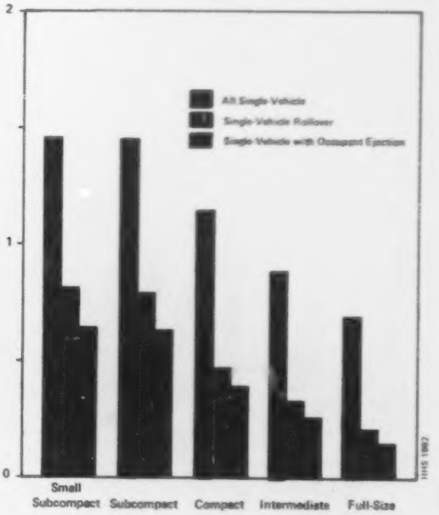


Figure 5
Passenger Car Occupant Deaths
Per 10,000 Registered Cars
In Single-Vehicle Crashes
By Car Size and Crash Type
Cars 1 to 5 Years Old
In Calendar Years 1978-1980

Number of Deaths Highest in Smallest Cars

(Cont'd from page 2)

These findings are highly consistent from year to year. The Institute has studied motor vehicle deaths by car size for all years since 1975. Nearly identical rates for 1978, 1979, and 1980 are shown in Figures 1, 2, and 4.

The results for fatalities in this publication are based on Institute analyses of national data from the Fatal Accident Reporting System (FARS), developed by the National Highway Traffic Safety Administration (NHTSA) and containing information on virtually all fatal accidents in the United States. Data obtained from police reports, motor vehicle administration files, vital statistics, and state highway department records are included in FARS. For purposes of the Institute's comparisons, all passenger car occupant fatalities during 1975-1980 occurring in cars 1-5 years old in each calendar year were examined by vehicle size group. Using these data, as well as the National Vehicle Population Profile produced by the R. L. Polk Company, the Institute calculated occupant deaths per 10,000 registered vehicles of each type.

Hazards Not Limited to Crashes with Larger Vehicles

Even if all cars on the road were small cars, the hazards of driving or riding in these vehicles would *not* be substantially alleviated, since the hazards of using small cars are not limited to crashes with larger vehicles. As shown in Figures 4 and 5, the occupants of small subcompact cars are more than twice as likely as people in full-size cars to die in single-vehicle crashes. In small subcompacts, there are almost twice as many single-vehicle *frontal* crashes with occupant fatalities per registered vehicle as in full-size cars, nearly four times as many fatal single-vehicle *rollover* crashes, and more than four times as many fatal single-vehicle crashes involving *occupant ejection*.

The incompatibility of lower, lighter cars with roadside structures designed to keep larger, heavier vehicles on the road may account in part for the high number of deaths among small car occupants in *single-vehicle* crashes. For instance, concrete barriers designed to guide straying vehicles weighing 4,000 pounds or more safely back onto the road may cause smaller ones to flip over. Similarly, posts and lamps designed to break away in crashes may not perform as intended when struck by lower, lighter cars. The National Transportation Safety Board has noted that "since the number of small front-wheel-drive vehicles is rapidly increasing . . . wheel snagging, particularly of small cars, is a problem." Citing these problems, a former Associate Administrator for Safety of the Federal Highway Administration added that "standard small sign supports can produce severe damage to both a small vehicle and vehicle occupants."

Insurance Claims Show Small Car Hazards

Like the latest death rates, the Highway Loss Data Institute's (HLDI) reports on insurance injury claims consistently have shown small cars to be associated with considerably more passenger car occupant injuries than large cars. (See *Status Report*, Vol. 16, No. 16, Oct. 20, 1981.) The smallest cars, the small subcompacts, have far more frequent first-party injury claims per insured car than full-size cars. All seventeen 1978-1980 model passenger cars with the worst insurance injury claims experience were subcompacts and small subcompacts. Of the 19 cars with the best records, none were small subcompacts; only three were subcompacts.

Domestics Outperform Japanese Models

The chance of being killed in a Japanese-made small car generally is far greater than in an American-made car of comparable size, the Institute's study of motor vehicle deaths by car size indicates. Cars made in Japan were chosen for special study because they comprise a large – and growing – part of the vehicle fleet in the United States, and because insurance claims data have shown these cars to have higher-than-average injury claim frequencies. (See *Status Report*, Vol. 16, No. 16, Oct. 20, 1981.)

Specifically, in 1978-1980 deaths per registered vehicle in Japanese small subcompact cars averaged about 40 percent higher than in cars in the same size group made in the United States. The number of deaths per registered vehicle in frontal crashes involving small subcompacts averaged 37 percent higher in Japanese cars; in single-vehicle crashes, 58 percent higher (Figure 6).

The somewhat shorter wheelbase of Japanese small subcompacts, as compared to American cars in the same size group, may in part explain the higher deaths per registered vehicle in the imported cars. But in the subcompact size group, even though Japanese- and American-built cars have approximately equal wheelbases, the number of deaths per registered vehicle for the imported models still was much worse than for the domestics (Figure 7).

Insurance Data Show Fewer Injuries in Domestics

The most recent insurance injury claims report, prepared by the Highway Loss Data Institute (HLDI), indicates that domestic car models consistently have better claims records than Japanese cars. Thirteen of the 17 cars (1978-1980 models) with the highest (i.e., worst) injury claim frequencies were made in Japan.

Figure 6
Passenger Car Occupant Deaths
Per 10,000 Registered Cars by Crash Type
Japanese- and American-made Small Subcompacts
Cars 1 to 5 Years Old in Calendar Years 1978-1980

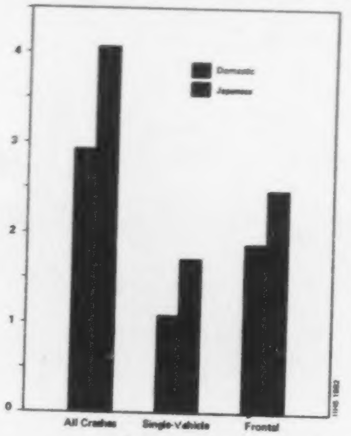
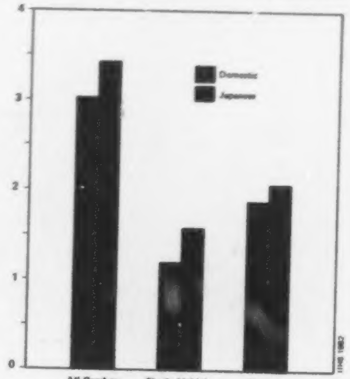


Figure 7
Passenger Car Occupant Deaths
Per 10,000 Registered Cars by Crash Type
Japanese- and American-made Subcompacts
Cars 1 to 5 Years Old in Calendar Years 1978-1980



In the three smallest car size groups, the vehicles with the worst injury claim frequencies were Japanese models: the Toyota Celica Supra (small compact), the Dodge Challenger (subcompact made by Mitsubishi), and the Datsun 200 SX (small subcompact). Conversely, in these size groups, the car with the lowest (i.e., best) insurance injury claim frequency for claims exceeding $500 was the Mercury Zephyr station wagon. The Ford Fairmont station wagon had the lowest frequency of claims exceeding $1,000 among all cars in the three smallest size groups.

Will the Japanese Make Their Cars Safer?

That's an important question, since 1978-1980 deaths per registered small car show the domestics outperforming Japanese-made cars. There are early indications, however, that this situation may change. For example:

- An executive of one of Japan's major auto companies was reported earlier this year to have said, "When you look at Japanese cars a year or two from now, I'd be very surprised if they all didn't pass the [U.S. government's] crash tests. . . . It's very unwise to have discrepancies in the crashworthiness compared to American small cars. There's no difference in technology or know-how. It's just a matter of the Japanese deciding that something has to be done, and that decision has been made." (See *Status Report*, Vol. 16, No. 6, April 27, 1981.)

- In the federal government's crash tests of 1980 cars, the Honda Civic performed poorly. After taking corrective measures, however, the Japanese company asked that their modified car be retested. The result: the Civic was one of only three models listed as having met the 30 mph injury criteria at 35 mph for both driver and front seat passenger. These results, said a U.S. official, show that "relatively minor improvements can significantly affect the test results." (See *Status Report*, Vol. 16, No. 16, Oct. 20, 1981.)

- In a Department of Transportation filing, Nissan Motor Company said it "supports any reasonable effort to reduce death and injury on the highway. We constantly observe the performance of our vehicles in the field, and are ready and willing to make product changes when an improvement in safety performance can be identified. We also devote much effort to research and development of new safety features for our vehicles. Nissan Motor Company wants our customers to have the safest possible vehicles which are at the same time reasonable to purchase and operate."

- A Japanese Ministry of Transport representative told the Eighth International Conference on Experimental Safety Vehicles, "I am in the opinion that the safety measures on the smaller vehicles problems are the most essential things to be considered. . . . We intend to cope with these problems by facilitating researches and studies, and encouraging technical developments in manufactures and to attain uniformity with international standards with our utmost efforts."

- Commenting on the federal government's recent decision to abandon plans for automatic restraints in new cars, a *New York Times* editorial concluded that "Japanese companies have overwhelmed the American market with well-finished, fuel-efficient cars. Perhaps enterprising Japanese makers will now decide that safety – or at least freedom from the jumble of shoulder belts – sells."

New Data Show Same Hazards

Data from state police-reported accident files add to the evidence that hazards in small cars are far greater than in larger vehicles. The Institute has examined these files in Maryland and North Carolina, and found that drivers of small cars are more likely to be killed or seriously injured in both frontal crashes into fixed objects and head-on crashes with other vehicles.

Specifically, in frontal crashes into fixed objects, drivers of small subcompacts during 1974-1979 were almost 40 percent more likely to be killed or seriously injured than drivers of full-size cars (Figure 8). The hazards of being in a small car were also great in head-on crashes with other cars. In Maryland, drivers of small subcompacts during 1974-1979 were almost two and a half times as likely as drivers of the largest passenger cars to be killed or seriously injured in these crashes; in North Carolina, almost twice as likely.

Data from three sources – police reports in Maryland and North Carolina, the national FARS files (see story, p. 2), and insurance claims files (see p. 5) – thus tell the same story: deaths and injuries in small cars are alarmingly high.

Figure 8
Percentage of Drivers with Serious and Fatal Injuries
In Frontal Crashes Into Fixed Objects
Model Years 1972 and Later
In Calendar Years 1974-1979

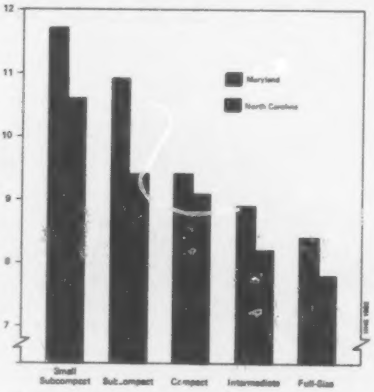
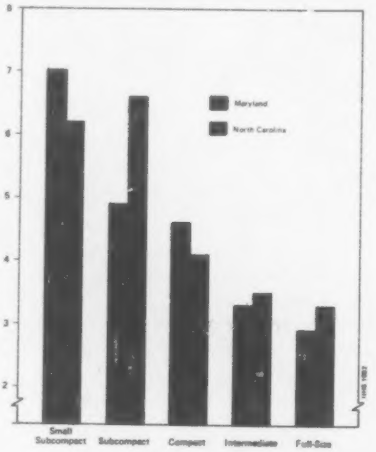


Figure 9
Percentage of Drivers with Serious and Fatal Injuries
In Head-On Crashes with Other Cars
Model Years 1972 and Later
In Calendar Years 1974-1979



Deaths In Small Cars Can Be Reduced

Small cars could provide greatly improved levels of crash protection. In fact, the quality of present cars in this respect is *far* from what could be provided.

Protecting people in small cars means implementing vehicle design changes reflecting technology that is *already available and feasible*. The time for such changes has never been more favorable. Automobiles – both domestics and imports – are undergoing sweeping overhauls of their design and manufacture; they are shrinking, losing weight, and becoming more fuel-efficient. As part of this process, long-needed improvements in occupant crash protection could be incorporated, especially since the technology for such improvements already exists.

- **Seat Belts**: Seat belts work; in crashes, they help keep people in cars, and reduce the violence of collisions with the vehicle's interior. But seat belts only work *if they are used*, and about 89 percent of all drivers are still traveling unrestrained. (See *Status Report*, Vol. 16, No. 9, June 24, 1981.)

- **Anti-Ejection Modifications**: When a person in a car is ejected in a crash, his or her body travels unprotected, often at a high rate of speed, until it is violently stopped by impacting the pavement, another vehicle, or an object on the roadside. Thus, a major priority in crash design should be to develop more effective ways to reduce the chance of occupants being ejected – that is, to keep them in the car where they can be protected by the vehicle's structure and restraint systems. But present car designs permit large numbers of occupant ejections. Designing car doors that will stay shut in crashes would go a long way toward saving people who presently are killed or severely injured when they are ejected through car doors that open during crashes. Improved glazing in side and rear windows also would reduce occupant ejections, as well as the lacerations caused by the glazing currently used.

- **Steering Column Improvements**: Energy absorbing steering column designs which automatically align with drivers' chests during crashes perform substantially better than the more commonly used non-aligning designs. However, only a small number of cars have these self-aligning designs. And, unfortunately, present federal compliance test requirements for steering columns discourage the superior designs. The use of self-aligning energy-absorbing steering columns is long overdue.

- **Automatic Seat Belts**: A way to protect people who do not use their manual belts is to install seat belts that automatically position themselves around front-seat occupants when they enter the car. Automatic belts currently are available in only a small percentage of cars on the road, including some Volkswagen Rabbits. The seat belt usage rate is about 80 percent in these cars, compared to only about 35 percent in Rabbits with manual belts. This difference has resulted in substantially lower occupant death rates for the models with automatic belts. Moreover, unlike manual seat belts, automatic belts must meet *specific crash test performance requirements*.

- **Air Bags**: In contrast to any type of belt, air bags would have a use level of virtually 100 percent from the time they are installed, since they would deploy automatically from their storage places out of sight in the steering wheel and instrument panel, to cushion occupants in a frontal crash. In more than 800 million miles of use, hundreds of actual crashes, and extensive tests by auto makers, air bag producers, and

(Cont'd on next page)

research organizations, air bags have proven to be highly effective in reducing the crash forces that cause highway deaths and injuries. Yet today, only a very few cars – none of them the small cars with alarmingly high deaths per registered vehicle – are equipped with air bags. No new cars with air bags are being offered for sale in the United States, although some are available in Europe.

- **Anti-Laceration Windshields**: Since 1968, the windshields on all new cars have been required to have a special plastic layer between the layers of glass to reduce head penetration and facial lacerations in crashes. But the layer of glass nearest the occupants still causes severe injuries. Americans suffer about 266,000 facial lacerations and 52,000 facial fractures annually in motor vehicle crashes.

An alternative windshield design, developed in Europe and already on thousands of cars there, provides an extra layer of plastic on the surface of the windshield nearest the occupants – the surface a face can strike in a frontal crash – thus effectively reducing the laceration problem. The Department of Transportation has been asked to change the applicable federal standard to permit this new windshield in the United States.

* * *

Providing needed levels of occupant protection in small cars does not need to mean adding overall weight to vehicles, or implementing technology that is prohibitively expensive or complex. The federal government already has a number of small cars, called Research Safety Vehicles (RSVs), which are lightweight and energy-efficient, and which embody most of the state-of-the-art safety engineering design concepts discussed above. In addition, some of the RSVs have energy-absorbing, foam-filled steel body structures.

This Research Safety Vehicle (RSV), built in the 1970's for the Department of Transportation by Minicars of California, weighs 2,500 pounds and is designed to protect the driver and passengers against injury in 40-50 mph frontal crashes, and in side crashes at speeds greater than 50 mph. The car has an advanced air bag system, and an innovative automotive body composed of foam-filled steel sections that absorb crash energy more effectively than conventional auto bodies. Minicars' RSV also has a soft, flexible bumper, hood, and front fenders that reduce impact forces if the car hits a pedestrian. The bumpers would not be damaged in crashes up to 10 mph.

In addition to these safety features, the RSV represents a significant improvement over conventional cars in fuel economy, getting 40-50 miles per gallon.

The purpose of the RSV program is to demonstrate to domestic and foreign automakers and the public what can be done with present technology to provide adequate occupant protection in crashes. The idea is that if manufacturers and the public know that RSV-type cars – small, stylish and, above all, relatively safe – can be produced and sold, such vehicles would start appearing in showrooms along with customers to buy them. Public and private consumer preference surveys indicate a strong potential market for vehicles with such safety improvements. (See *Status Report*, Vol. 15 (1980), Nos. 2 and 12; Vol. 14 (1979), Nos. 3 and 18; Vol. 13 (1978), No. 13; Vol. 12 (1977), No. 13; and Vol. 11 (1976), Nos. 13 and 16.)

However, the safety performance demonstrated by the RSV is not yet being provided in any small or large car commercially available in the United States. Nor has any auto manufacturer, domestic or foreign, announced its firm intention to make such technologies available in the United States new car marketplace.

Large Cars, Domestics Have Lower Insurance Injury Claim Frequencies

The Highway Loss Data Institute (HLDI) annually publishes a summary of the insurance injury loss experience of passenger cars by car size. In its September 1981 report, HLDI said that intermediate-sized cars (those with 111- to 120-inch wheelbase) had the best claims experience for occupant injuries. The report included 1978 through 1980 model cars.

With one exception, the 19 cars with the best injury loss experience were station wagons or four-door sedans, all were domestic models, and 15 of them were from General Motors. The 17 models with the worst results all were subcompacts or small subcompacts, most were two-door models, and 14 were imports.

Two Oldsmobiles, the Custom Cruiser station wagon and the Toronado, a specialty model, led the list of cars with the best injury loss experience, with an overall claim frequency 42 percent below the average for all cars combined. The Buick Estate station wagon had the lowest frequency of claims exceeding $250, the Oldsmobile Custom Cruiser and the Buick Century station wagon had the lowest frequency of claims greater than $500, and the Chevrolet Caprice station wagon had the lowest frequency of claims greater than $1,000.

The Japanese-made Dodge Challenger had the highest overall claim frequency (62 percent above average), and the Japanese-made Plymouth Arrow had the highest frequency of claims exceeding $250 (65 percent above average).

The summary report lists the most common passenger cars according to size group and relative injury claim frequencies. Copies of the report, "Summary of Injury Claims Experience for Passenger Cars" (S-I 80-1), are available from the Highway Loss Data Institute, Watergate 600, Washington, D.C. 20037.

STATEMENT OF STEPHEN TERET, J.D., M.P.H., ASSISTANT PROFESSOR, JOHNS HOPKINS SCHOOL OF HYGIENE AND PUBLIC HEALTH, BALTIMORE, MD., ON BEHALF OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

Mr. Teret. My name is Stephen Teret. I am associated with the Johns Hopkins School of Hygiene and Public Health where I teach and do research in the field of injury control.

Before becoming a faculty member in the field of injury control, I worked as a plaintiffs' trial lawyer in the State of New York and I had the very grim opportunity to represent many people who had been seriously and permanently maimed in the types of crashes that we have seen in the film today.

I am speaking to you today on behalf of the American Public Health Association, which is an association of approximately 50,000 professionals who are dedicated to preserving the health of the American public and keeping the American public free from disease and injury.

There is really only one point that I would like to make today, which is quite a simple point, and that is we, the American public, do not have the freedom to purchase a car that is equipped with airbags.

We have heard a lot of debate over the decades about mandatory installation of automatic restraints and whether that infringes upon one's freedom. I would like to focus attention on the other side of the coin, which is that we should have the liberty to exercise the option of purchasing an airbag, and we don't have that liberty today, nor have we had it for some time.

In examining the history of the passive restraint issue I was interested to see in the transcript of a public meeting called by the Government in 1969 that a researcher stated that in a few years we would certainly have airbags, and we would look back on that date in 1969 and wonder what the opposition was to airbags. Today, more than 12 years later, we still can't buy them, and we still can't look back with wonder.

The bill proposed by Senator Danforth presents an innovative way to give us the freedom to purchase these airbags. We have already been told, both by the National Highway Traffic Safety Administration and the manufacturers, that we are not going to see passive restraints in cars absent some legislation such as Senator Danforth's.

In the hearings which were held last year in the House, General Motors stated that in the absence of a passive restraint standard in the 1983 model year, General Motors does not plan to offer automatic restraints due to the lack of any significant market demand for automatic restraints.

Over the last decade, many arguments have been raised about airbags; those arguments dealt with the noise of the airbag, the chemicals used in the inflation process of the airbag, the out-of-position child, and the efficacy of airbag deployment. All of those arguments have been examined and successfully met. The only argument that remains on the part of the manufacturers is the economic argument, and it is that argument which Senator Danforth's bill addresses.

The American Public Health Association strongly supports the bill introduced by Senator Danforth with the understanding that we can clearly reduce one of the major public health problems in the country today, if we only give the public the option to purchase the most effective safety device that we have.

Thank you.

[Statement of Mr. Teret follows:]

STATEMENT BY STEPHEN TERET, ON BEHALF OF AMERICAN PUBLIC HEALTH ASSOCIATION, BEFORE THE SUBCOMMITTEE ON TAXATION AND DEBT MANAGEMENT, SENATE COMMITTEE ON FINANCE, JANUARY 28, 1982.

Mr. Chairman, my name is Stephen Teret and I am a faculty member of The Johns Hopkins University School of Hygiene and Public Health, where I teach and do research in the field of Injury Control. Prior to that I worked as a plaintiff's trial lawyer and had the grim opportunity to represent those who had been permanently maimed in automobile crashes. I am speaking to you today on behalf of the American Public Health Association, an organization of approximately 50,000 health professionals dedicated to preserving health and preventing injury and disease to the public.

Motor vehicle injuries represent one of the chief tolls on the health of the United States public. A good share of the deaths and injuries resulting from car crashes could have been prevented if the car was equipped with air bags. Unfortunately, we cannot buy a car in the United States today that is equipped with air bags.

This unacceptable situation has existed for decades. In writing a history of automatic restraint systems for the National Highway Traffic Safety Administration, I came across a comment made at a public meeting called by the government in August 1969. A researcher in automatic restraint systems said: "... I'm quite sure that in a matter of a few years... the air bags will be used and that we will look back and say it is hard to believe that in a meeting such as this there was a large opposition to such a device."(1)

Now, more than a dozen years later, it's still hard to believe that we can't buy an air bag equipped car.

The legislation proposed by Senator Danforth would give members of the public the freedom to choose an extremely important and effective safety option. Last Spring, hearings were held in the House on automatic occupant restraint systems. In written response to a question posed by the House Subcommittee on Telecommunications, Consumer Protection and Finance, General Motors stated that "(i)n the absence of a passive restraint standard in the 1983 model year, General Motors does not now plan to offer automatic restraints due to the lack of any significant market demand for automatic systems."(2)

After decades of voiced concerns about the functioning of air bag systems, with each concern being carefully examined and laid to rest, the sole remaining concern of the automobile manufacturers is an economic one. Senator Danforth's bill, S. 1887, defuses that concern in an innovative and equitable manner.

The American Public Health Association supports S. 1887 with the hope that it will provide the public with the freedom to choose the most effective protection we have against motor vehicle injuries.

References

(1) Patrick L.L., Transcript of Proceedings, Federal Highway Administration Meeting on Inflatable Occupant Restraint Systems, Washington, D.C., August 27, 1969, p. 163.

(2) Automatic Crash Protection Standards: Hearings on H.R. 3151, H.R. 3184 and H.R. 3237 Before the Subcommittee on Telecommunications, Consumer Protection, and Finance of the House Committee on Energy and Commerce, 97th Congress, 1st Sess., April 27 and 30, 1981 (General Motors Response, p. 336).

STATEMENT OF CLARENCE DITLOW, EXECUTIVE DIRECTOR, CENTER FOR AUTO SAFETY, WASHINGTON, D.C.

Mr. DITLOW. Thank you.

I am Clarence Ditlow, the executive director of the Center for Auto Safety.

In many ways, the battle that we are seeing over the airbag reflects an earlier battle that we had in the 1950's and early 1960's over seatbelts themselves. Prior to the passage of the Safety Act in 1966, the automobile manufacturers opposed the installation of even seatbelts in automobiles in the 1950's on the grounds that there was no evidence that seatbelts were any more effective than simply bracing your hands on the steering or on the floor of the automobile. After lapbelts were indeed installed in cars, the automobile manufacturers opposed shoulder harnesses.

What we saw in the mid-1960's was the passage of the 1966 act because of the public concern with the rising traffic toll which had then reached 55,000. The standards that were issued in the late 1960's and early 1970's can only be called a spectacular success. According to the Department of Transportation in an October 1982 study, the safety standards that were issued since 1968 had saved 73,000 lives. But what we are faced with for the future is the fact that these gains may be wiped out.

At the same time that the Department pointed out that we had saved 73,000 lives, they projected that the present fatality toll of 51,000 on the Nation's highways could rise by 19,000, to a total of 70,000, by the year 1990 in large part due to the introduction of small cars on the highways.

With the rise of fatalities, we will see a concomitant rise in automobile accidents. The $60 billion present toll will go up, and not only will the consumers pay for it, but the Government will pay for it, as Senator Danforth has pointed out.

The single most effective way to save lives and reduce serious injuries in automobile accidents in the near term is to install airbags in automobiles. They are exceedingly reliable, far more reliable than seatbelts themselves. They will save 9,000 to 12,000 lives annually.

They will protect in higher speed crashes, the equivalent of a 40- to 45-mile-an-hour into a barrier. And, if they are produced in large volume, they will cost the automobile manufacturers as little as $100 according to the information submitted by the auto companies to the Department of Transportation.

What we are faced with today is how to break the logjam over airbags and how to get them on the road in America. S. 1887, Senator Danforth's bill, has the potential to do that, because the manufacturers, as Mr. Teret has pointed out, have only one remaining argument and that is the cost of the airbag.

The auto companies, traditionally, have not looked to the savings on the road, but they have looked at the cost on the sticker price. The tax credit would eliminate any opposition based on cost, because even in lower volumes an airbag system will not, cannot cost more than $300, and the tax credit will fully wipe that out.

One thing that we would like to see consideration of in the bill is whether or not the credit should be linked to the airbag car itself, so that you see a reduction in price associated with the particular car, if the manufacturers choose to pass that on to the consumer, because we think that this is one way to not only save lives, but to increase automobile sales by reflecting in the price of the automobile the tax credit itself.

Thank you.

[Statement of Mr. Ditlow follows:]

STATEMENT OF CLARENCE M. DITLOW III
DIRECTOR, CENTER FOR AUTO SAFETY
BEFORE THE SUBCOMMITTEE ON TAXATION
OF THE SENATE FINANCE COMMITTEE
WASHINGTON, D.C., JANUARY 28, 1982

Mr. Chairman and members of the Committee, thank you for the invitation to testify on tax credits for air bags in cars and excise taxes on cars without air bags. I am the Director of the Center for Auto Safety, a non-profit organization founded by Consumers Union and Ralph Nader in 1970 and independent of both since 1972.

For decades the conventional explanation of the auto industry and its allies was that most accidents are caused by wayward drivers. With the repetition of publicity themes about the "nut behind the wheel," industry bombarded public consciousness into believing that bad drivers were the cause and good drivers the solution. Not only was their approach unscientific regarding drivers, but it conveniently drew attention away from the already available or easily realizable innovations that could be incorporated into vehicle and highway design to minimize the likelihood of a crash and to reduce the severity of injuries if a crash should occur.

When fundamental safety measures such as seat belts were suggested by early safety advocates, industry opposed them. For example, GM safety engineer Howard Gandelot incredibly stated in 1954:

> Until we have substantially more information I find it difficult to believe that the seat belt can afford the driver any great amount of protection over and above that which is available to him through the medium of the safety-type steering wheel if he has his hands on the wheel and grips the rim sufficiently tight to take advantage of its energy absorption properties and also takes advantage of the shock absorbing action which can be achieved by correct positioning of the feet and legs.[1]

After failing in its efforts to block standard lap belts, GM opposed shoulder harnesses when they were suggested as standard equipment in the mid-1960's. Thus GM President James Roche set up objections to shoulder belts similar to those we hear today:

> [I]n a severe impact situation, shoulder harnesses can do more harm than good. While the harness does

---

[1] Reprinted in Nader, Unsafe at Any Speed 100-01 (2nd Ed. 1972)

> restrain the car occupant's forward motion, it also deflects the impact force into a downward motion, forcing the occupant farther under the seatbelt. This downward force can result in highly injurious pressures on the abdominal area.
> A shoulder harness also can exert dangerous pressure on the occupant's neck, particularly in the case of a relatively high-speed side impact.[2]

In 1966, an uprising of public concern over soaring vehicle fatalities led to a historic public safety program -- Congressional authorization for vehicle safety standards mandated by the Department of Transportation (DOT). Subsequent mandatory safety features were a major success in reducing the highway casualty epidemic. In October 1981, DOT estimated that "a 1980 car is at least 25 percent safer than a mid-1960's one, [thereby resulting in] saving over 73,000 lives since 1966 - or about 10,000 per year today." 3

The 1980's once again present the spectre of soaring deaths on the highways. The original vehicle safety standards never anticipated the tremendous influx of small cars weighing 2,000 pounds or less. With the last significant revision being the gas tank standard in 1976, the safety standards are rapidly becoming outmoded.[4] Unless new safety measures are adopted to meet the safety hazards of small cars, traffic fatalities will increase by 19,000 to an annual total of 70,000 in 1990.[5]

---

[2] Testimony in Hearings on Federal Role in Traffic Safety Before the Subcomm. on Executive Reorganization of the Senate Comm. on Government Operations, 89th Cong., 1st Sess. 669 (1956).

[3] Traffic Safety Trends and Forecasts. Similarly, a General Accounting Office Report, "Effectiveness, Benefits, and Costs of Federal Safety Standards for Protection of Car Occupants," issued in July 1976, estimated that vehicle safety improvements introduced from 1966 to 1970 had resulted in saving approximately 28,230 lives.

[4] The side impact standard (FMVSS 214) is a good example of an outmoded standard. It requires a car's side not to crush more than 18 inches when subject to a static force of 7,000 pounds or twice the weight of the car, whichever is less. Thus a 2,000 pound subcompact car which needs more crash protection must only withstand a force of 4,000 pounds while a 3,500 pound large car must withstand 7,000 pounds.

[5] Traffic Safety Trends and Forecasts at 3.

The single most effective way to reduce traffic fatalities is to install a nearly 30-year-old technology, the air bag, in all cars. If this were done, occupant fatalities and serious injuries will be reduced by 9-12,000 and 100,000 respectively each year.

Restraint System Reliability

Air bags are the most reliable safety system ever put into automobiles. Based on the GM production fleet of 10,281 1974-76 air bag cars, NHTSA projected a failure rate of less than 0.005%. There have been no failures to deploy in accidents where the bags are designed to inflate. In sharp contrast, brakes, tires, steering and lights have failure rates of 2 to 14% in periodic vehicle inspection.

Active seat belts are one of the most defective systems in a car with over 90 recalls of 7.2 million vehicles through 1979. Almost 10% of all vehicles recalled have been for defects in seat belt systems. The primary reason for this is that there is no dynamic testing of active seat belts as there is for passive systems. The auto manufacturers would have a lot more enthusiasm for passive restraints if active belts had to live up to the same criteria as passive belts and air bags.

High Speed Crashes

Air bags are far superior to belt systems in protecting occupants in high speed crashes which is where most occupant fatalities occur. Only 35% of the occupant fatalities each year occur in crashes within the 30 MPH barrier requirement of Standard 208. Another 38% die in crashes between 30 and 50 MPH. This potential for saving lives was the reason NHTSA in 1973 saw "Passive Protection at 50 Miles Per Hour" as a desired safety goal.

The 1974-76 GM air bag cars provided protection through at least 40 MPH.[6] Real world crashes verified this. In April 1974, an air bag equipped Buick and Chevrolet El Camino hit head on with a closing speed between 95 and 105 MPH. The driver and passenger of the air bag equipped auto suffered minor to moderate injuries. In August 1981, a 1975 Oldsmobile hit a heavy truck at a closing speed of 80 MPH with an 81-year-old passenger and 54-year-old driver surviving what police described as an unsurviveable crash. Incredibly, the occupants did not know the car had air bags.

The Research Safety Vehicle program of NHTSA has confirmed the 50 MPH capability of small cars with air bags. The RSV itself has come in well under the injury criteria of 208 in a 51 MPH barrier crash.[7] Modified Vegas and Pintos with air bags have also provided survivable occupant protection in 50 MPH crashes.[8] In DOT's New Car Assessment Program, a compact 1980 Chevrolet Citation and intermediate 1975 Volvo equipped with air bags had occupant surival in 37 and 40 MPH crashes respectively.[9]

---

[6] R.A. Wilson, "Part II -- Crash Testing the General Motors Air Cushion," Proceedings of the Fifth International Conference on Experimental Safety Vehicles, 471 (1975).

How To Get Air Bags In Cars

The tragedy of the air bag is that this life-saving technology has never been made readily available to the American public. Although GM offered air bags as options on some luxury models in 1974-76, GM actually made it difficult to buy the cars as documented by the Wall Street Journal.[10] Despite internal marketing studies showing strong consumer demand for air bags, GM never offered or promoted air bags in its best selling models such as Chevrolets. In one GM market survey, 70% of the sample preferred the air bag to manual or passive belts even though the air bag was said to cost $360.[11]

S. 1887 would solve the dilemma of how to get air bags in cars by imposing a $300 excise tax on 1984 and later cars without air bags while providing it a $300 excise tax credit to the manufacturer for 1984 and later cars equipped with air bags. Since air bags mass-produced in large volume would cost manufacturer only $100, this would certainly eliminate any possible objections based on cost of there lifesaving systems. As is shown in the attached internal NHTSA memo, even small-rule production of air bags could cost the companies no more than $300.[12]

While the Center prefers mandating air bags in cars, the economic system of S. 1887 has the potential for getting lifesaving air bags on the road with some modification to better protect the consumer. Primarily, the tax credit should go directly to the consumer or the manufacturer should be required to pass the tax credit along to the consumer in a price reduction on the air bag equipped car. Thus if a low production volume air bag cost the manufacturer $300, the manufacturer would raise the price of the car by $300 to recover the cost but pass on the tax credit so that the overall price of the car is not increased. If the air bag costs the manufacturer less than $300, the full tax credit should still be passed on so that the sticker price will be lower and hopefully generate more sales. The danger in not linking the tax credit to the air bag car sold is that the manufacturer could well pass the savings on to non-air bag cars and warp the incentive created by the present legislation.

---

[7] DOT Contract Report, "Crashworthiness of the Subcompact Vehicle" (November 1975).

[8] Minicars, Inc., DOT Final Rep. No. HS-113-3-746 (November 1975); Statement of D. Friedman, Minicars, Inc., at April 28, 1977, DOT hearing on occupant protection.

[9] Fact Sheet (August 1980).

[10] November 11, 1976. A copy is attached for the hearing record.

[11] See attached summaries of GM studies from the Subcomm. on Government Activities and Transportation of the House Government Operation Committee.

[12] "Outrageous Air Bag Costs" (July 11, 1979), a copy of which is attached.

Senator PACKWOOD. Senator Danforth.

Senator DANFORTH. As far as an automobile owner is concerned, if airbags were installed in cars, would he notice any difference in the premiums he would pay?

General McDERMOTT. Currently, Senator Danforth, almost all major insurers, and perhaps most of the minor insurers, give a 30 percent discount on personal injury protection premiums in all jurisdictions that allow it, and I believe that 49 of the 51 jurisdictions including Puerto Rico, allow that 30-percent discount.

Senator DANFORTH. Thirty percent?

General McDERMOTT. Thirty percent on that part of the premium.

Senator PACKWOOD. Is that in cars that have airbags now?

General McDERMOTT. That is in cars with airbags now. There are some that were manufactured during the test period in the mid-seventies, and they are still out there.

If all cars had airbags, then, of course, you would reduce the bodily injury liability premium as well. Our estimate in the insurance industry is that it would save you about $30 a year on your insurance premium, and since the life of a car is 10 years that is $300, more than the cost of the airbag itself.

So there is a reduction on the books today, and that reduction will become greater when more cars get airbags.

Senator DANFORTH. Does anybody else have anything to say on this point?

Mr. BECK. I think Mr. Fergusson has done some work on this.

Mr. FERGUSSON. General McDermott is indeed right. There are assumptions, obviously, underlying these insurance-cost-saving estimates. Our corporation had made some of those early estimates back in 1977 during one of the many legislative and regulatory hearings being held.

We updated those figures based upon, I believe, 1979 casualty premium data. We entered into the hearing of last August 5 an estimated annual savings to automobile insurance consumers of $4.2 billion per year once the entire fleet would be airbag equipped.

Senator DANFORTH. I would like to follow up on a point that was made by Mr. Teret. Right now there are some cars around, as we saw in one of the films, that are equipped with airbags, but they were produced on a test basis, is that correct? They are not generally available to the public, is that so?

Mr. TERET. There were about 12,000 cars produced in the mid-seventies. They are not produced today. The only cars to my knowledge that are produced in which one could get an airbag are Mercedes-Benz cars produced in Europe, and not for sale in the United States.

Senator DANFORTH. So, if I wanted to go out this afternoon and buy a car with airbags, I would not be able to find one, is that correct?

Mr. TERET. Try as you might, you would be unable to do so.

Senator DANFORTH. If we said, well, without any legislation at all, let's hope for the best, and let market forces work. Would it be fair to say that if automobile manufacturers started producing some cars with airbags on an optional basis, to the extent that it was a relatively small fraction of the fleet, the price per airbag would be much higher than it would be if it were a much larger portion or all of the fleet?

Is that true? Is there an economy in numbers?

General McDermott. That is correct.

Senator Danforth. If airbags were installed in just a small fraction of the fleet, and consumers could request them as an option but only a fraction of the fleet had airbags, the economics of the automobile market would dictate that a relatively high price would be charged for the car with the airbags. Therefore, the decision of the consumer in dollars and cents terms would be very heavily weighted in favor of the car without airbags. Is that correct?

General McDermott. That is correct.

Senator Danforth. This bill is designed to turn that around. This bill not only has a tax credit, but it has an excise tax imposed on the sale of cars without airbags. What I wanted to point out was that the economics of the airbag question is precisely what this bill was designed to address—the economics from the standpoint of the consumer, and the economics from the standpoint of the automobile manufacturers, and the economics from the standpoint of the Government.

As I pointed out in my opening statement, I am not wedded to any point of this bill. If anybody has a better idea, come forward. I have absolutely no pride of authorship whatever. But it seems to me that it is pretty hard to argue against safety when some 10,000 or so lives are in question, unless it is done on a dollars and cents basis. The point of the bill is to address the dollars and cents question head on, and to try to resolve it.

I would just say to the committee, and to anybody else who is interested in this subject, if you have a better idea, if Ford has a better idea, let's hear it. But I don't think that at a time when auto accidents are going to increase, auto fatalities are going to increase because cars are smaller, the answer is, "Well, I am sorry, we don't have anything to say."

Let me ask you just one other question. Have there been advertising campaigns, well funded advertising campaigns, to try to encourage people to use seatbelts?

General McDermott. Senator, that is the one thing that is absent. I have heard from Detroit that safety doesn't sell. My response to that is that they don't try to sell safety.

Senator Danforth. But this is a different question. Supposing that the rejoinder to the legislation would be: Well, we are going to try to promote the use of seatbelts. Not enough people use seatbelts. If 100 percent of the population used seatbelts, we would solve the problem. Therefore, we are going to have an advertising campaign telling people to buckle up.

My question is: Have there been buckle-up campaigns in the past, and how effective have they been as a practical matter?

Mr. Teret. Senator, there was an experiment that was reported, I believe in 1974, in which an elegantly designed study was performed using an experimental group and a control group, a study which could pass muster in any scientific analysis.

It involved a blitz of advertising using award-winning TV commercials designed to have people use their seatbelts. The commercials were shown at prime time and relevant times for 9 months to an experimental group that was connected to one cable TV station, and were not shown to a control group connected to another cable.

There was an analysis of observational studies done to see whether there was any difference in seatbelt utilization by the experimental group exposed to these commercials and the control group which wasn't. The conclusion was that there was no difference in seatbelt utilization.

That type of study has been done at other times, and that is basically what has been the result from all the studies.

Senator DANFORTH. It is my understanding that 11 percent of all people in cars use seatbelts and 7 percent of the people who are injured in accidents use seatbelts, or something like that. Is that roughly correct, do you know?

Mr. DITLOW. That is correct, Senator Danforth.

In addition to the study that Mr. Teret referenced on educational efforts, the automobile manufacturers themselves have tried in certain cities, like Grand Rapids, to increase seatbelt usage through major funding of commercials and educational campaigns. In addition, I believe the National Safety Council had the equivalent of almost $70 million once in free public service announcement to increase seatbelt usage.

We simply have seen, despite everything done within the last 10 years, that seatbelt usage has gone down. It was once at 18 percent, it is now down to 11 percent.

Senator DANFORTH. I have to go to the floor to make a speech, which I am sure the world is waiting for. I am sorry to have to leave, but I will be back in 20 minutes.

Senator PACKWOOD. Senator Byrd.

Senator BYRD. Let me follow up on Senator Danforth's question regarding seatbelts. Would the panel favor legislation requiring that automobiles be so mechanized that they could not be utilized unless the seatbelts were used?

Senator PACKWOOD. Do you mean that the car wouldn't start unless the seatbelt was attached?

Senator BYRD. The car would not start unless the seatbelt was fastened.

General MCDERMOTT. Senator, you know that solution was tried, and the public rejected it. Apparently that is the reason that passive restraints seem to be favored.

Senator BYRD. That is exactly the point that I wanted to develop. When the legislation was originally passed, it required the automobile manufacturers to manufacture the car in a way that the car could not start unless the seatbelts were fastened. The public reaction to that was such that the Congress quickly beat a hasty retreat and repealed the legislation that it had previously enacted just a short time before.

Since I am not willing to say, This is fine, let's do it, perhaps I am in a position where someone can say, Well, he favors more and more accidents. He wants more and more people killed. He is against safety. I am not against safety. I don't want people killed. But I think we have to understand what we are doing, and see whether it is in conformity with the principles that we have got to work on in Government.

Mr. Teret made a statement that I think is worth commenting on.

As I recollect, Mr. Teret, you said that the automobile manufacturers, or General Motors had stated that if the people want airbags, General Motors will provide airbags. Is that roughly what you said?

Mr. TERET. Not precisely, Senator Byrd. I was quoting from a written statement made by General Motors in response to questions in a hearing in the House last year in which they were asked whether they would be putting any type of automatic restraint in automobiles. They said absent a standard requiring them to do so, they had no plans to install them in cars because of a lack of any significant market demand for automatic systems.

Senator BYRD. What they are saying is, if the people want airbags, they will give them airbags, but there is no demand for airbags. That is what they are saying.

General McDERMOTT. May I try to answer that question?

Senator BYRD. Certainly.

General McDERMOTT. When I said earlier that safety had not been sold, I was not referring to the fact that they have not tried to push buckling-up. There have been buckling-up campaigns. But when the airbags were being tested back in the mid-1970's, and there were 10,000 General Motors cars out there, there wasn't a promotion of the airbag.

Surveys show that the majority of people want airbags and are willing to pay more, and particularly young drivers. Young people are more concerned with safety. Eighteen percent of young people buckle up as opposed to 9 percent of older drivers.

Senator BYRD. If that is the case, if the people want airbags, the automobile manufacturers are in business to sell automobiles, they have no objection to adding accessories if people want them. They have added every accessory you can think of, and they will add this one if the people want it.

You say that the majority of the people want them, but apparently the automobile manufacturers don't reach the same conclusion.

General McDERMOTT. General Motors has conducted four surveys. Gallop has had surveys. The New York Times has had surveys. They all show that people want them, and young people on the ratio of 2 to 1 want them over older drivers. So they want them, you have got to make them available as an option, and you have got to sell the advantages of them just as you sell wire wheels and vinyl tops.

Senator BYRD. That is fine, and I favor that. I think airbags should be available to the people who want them. My only concern is, should the Government go in and use tax funds to pay the automobile manufacturers to put in airbags. If we do that, why don't we pay them to put in other equipment?

General McDERMOTT. I have the same question in my mind, Senator. I am with you, I would like to see it made available as an option, and let the free market system work. But it requires the supply side as well as the demand side to make it work. I think the demand is there, let's get it up on the supply side and sell it.

Senator **Packwood**. As I recall, auto companies tried that with seatbelts. Long before they were mandated, they were offered as an option, and so few people bought them that the companies stopped offering them.

Mr. **Teret**. There is a very considerable difference between seatbelts and airbags that one must keep in mind, and that is, active seatbelts are something that you would have to connect each time you got into the car. To some people that was troublesome or bothersome. To some people, seatbelts were uncomfortable.

What we have to remember about airbags is that they are unobtrusive. You don't even see them. You don't even have to know that they are there until a crash occurs and they are used and they save the life of the occupant of the vehicle.

Mr. **Beck**. May I say, Senator, with regard to your former question about the use of these and should they be made available or not. We do have to have an economy of scale because people will not be able to buy them at $1,000 a piece, and it does require an economy of scale. We are going to get the price down, we are told, to a very reasonable amount if they are produced at 500,000 or more.

We really don't know why the automobile manufacturers will not move ahead, to be frank about it, but I think that this is the case. We just don't know why, we cannot answer your question as to why they will not move ahead.

Senator **Byrd**. I don't know why either. It seems to me that it would be logical for them to move ahead and make that available.

Mr. **Ditlow**. We see the inconsistency right now. In Europe, Mercedes is actually advertising their airbag system on the grounds it prevents the facial injuries of the type about which Dr. Haddon was talking. They are selling them to the Europeans at prices that are quite high, as anything on the Mercedes is expensive. Although they are very successful, they will not introduce them into the United States.

Senator **Byrd**. My impression is that the European automobile manufacturers have been ahead of Americans automobile manufacturers in almost every test that you can think of.

I remember back in the early 1950's, when European automobiles had automatic signals at a time when we had to put our hand out of the window and signal whether you were going to make a right turn or a left turn. Yet, the European automobiles already had the mechanical signal. I think they have been ahead of us in many respects.

General **McDermott**. Yes, Senator, but I think we ought to be proud of the fact that the state of the art in safety in this country is ahead of what it is in Europe and Japan. The study I referred to earlier showed that our cars are in fact safer than foreign cars, much safer. They can be made even more safe if we go ahead with the airbags. The airbag was developed here.

Senator **Byrd**. I had not been aware of the comparison. I am glad to hear that our cars are safer. Is it because they are larger?

General **McDermott**. No, even when you compare small cars with small cars, the American cars are safer than, let us say, the Japanese cars, much safer.

We do produce a better car, and if the American buyer gets that word maybe we will turn the American automobile industry around. All we are asking on the automobile insurance side is, let's go one step further and make that package for the passengers and the driver a little safer yet.

Senator BYRD. Thank you, sir.

Senator PACKWOOD. Gentlemen, thank you.

Mr. BECK. Thank you very much.

Senator PACKWOOD. Next we will hear Joan Claybrook, former Administrator of the National Highway Traffic Safety Administration.

Welcome back.

STATEMENT OF JOAN CLAYBROOK, FORMER ADMINISTRATOR, NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

Ms. CLAYBROOK. Thank you, Senator.

I would like to address a couple of issues that have been raised here before I make some additional comments.

First of all, with regard to the issues raised by Senator Byrd, and I am sorry that he has slipped out. It seems to me that the rationale for the Government involvement in this auto safety issue is certainly as strong as the Government involvement in financing national defense.

There is a similarity here, and in fact there is an even greater need on an immediate basis for funding auto safety improvements since there is such a large number of people killed every single year on the highway, whereas certainly in the short term we have not seen that kind of death and injury occur from war experience.

Indeed, it was already mentioned once, but I would like to reiterate, all the Americans killed in the Vietnam war are about equivalent to the number of Americans killed each year on the Nation's highways.

I would also like to make the comment that for employers, as well as for the armed services, improved auto safety has a tremendous payoff. Approximately one-third of all occupational injuries occur in auto crashes, and so the cost to American business is enormous from the experience in automobiles. More members of the armed services, as was pointed out by General McDermott, are killed in auto crashes and injured than in any other form.

One other point that is worthy of comment has to do with the interlock device, and I would like to correct the record. In the early 1970's, the Federal Government, under Secretary John Volpe, proposed installation of air bags in cars. Ford Motor Co. objected to that and proposed to the White House a better idea of theirs, which was the interlock device.

The Department of Transportation was ordered by the White House to switch the standard and to put the interlock device into law, into regulation.

Senator PACKWOOD. By the automatic interlock, do you mean that the car would not start unless the seat belts were fastened?

Ms. CLAYBROOK. That is correct, and that was not an instrument of regulation, it was originally the idea of Ford Motor Co.

The comment that Ford's seat belt sales promotion programs did not work, is also a myth. The Insurance Institute for Highway Safety has done some research looking back in the period of 1956 when Ford Motor Co. offered a safety package with seat belts—not the shoulder harness then, but just the seat belts—as an option.

The record shows in congressional testimony in 1957 that, in fact, it was a very successful program. But some of the other auto companies were frustrated and concerned that if Ford promoted safety that it might hurt auto sales. The logic of that has never quite made any sense to me.

Senator PACKWOOD. To the best of your knowledge, why didn't Ford go on with it, if it was successful?

Ms. CLAYBROOK. Because of complaints by General Motors.

Senator PACKWOOD. Does that usually deter Ford?

Ms. CLAYBROOK. I think it does. General Motors is the price leader, and I think that it has an enormous effect on Ford's decisions.

Senator PACKWOOD. Let me make sure, you don't mean complained. If GM said, "We are not going to do it, and if you want to do it, go ahead. If you want to sell your Ford for $50 more than our Chevrolet, we will stick with the car that is $50 cheaper."

Ms. CLAYBROOK. That is right. General Motors could underprice Ford, and still survive a long time. I think that was probably the device used, although I don't in fact know that.

I would like to comment, if I could, on several items before discussing the content of the bill. The first is that I think it is inappropriate to say that the concept of Federal auto safety regulation has not worked. Clarence Ditlow pointed out that some 70,000 lives have already been saved in the United States since 1968, according to Government research, by the existing safety standards in cars, and they are indeed very minimal standards.

The concept of revoking the motor vehicle safety standard for automatic restraints on the basis that the auto companies were going to produce a detachable belt and, therefore, it was not a cost-effective standard, is, I think, nothing short of ridiculous.

The Government set a safety performance standard, and a number of different designs could be used to meet that standard. The air bag is certainly cost effective in every sense of the word. There is no question about it, but the Government's recent decision was based on an analysis primarily of a detachable belt, which is perhaps the worse design which could be produced.

Senator PACKWOOD. Based on what?

Ms. CLAYBROOK. A detachable belt, the concept there being that it would not be very effective because not many people would keep it attached. Therefore, for the benefit analysis, there wouldn't be much benefit from it, and the cost would outweigh the benefits.

They could not make that same claim as to airbags, but the analysis did not focus on that.

Additionally, the Government could have changed that standard if they thought that the industry was not promptly complying with it. They could have changed its provisions. They had plenty of authority to do that.

One of the issues that has been raised here is the cost to the automobile manufacturers of these improved safety systems. I would like to say that, first of all, the stop-start history of airbag production has primarily been fostered by the automotive industry and it has indeed been very costly. It could, on the other side, be very profitable. As Douglas Fraser of the United Auto Workers has pointed out, safety systems create jobs and help the economy.

Third, I think it is important to say that failure to use the advanced technology known to the U.S. automobile industry, particularly in small cars, has been a missed opportunity.

I think that an advertisement to the public today that says, "Buy a very safe small car. General Motors or Ford offers a very safe small car for you," that this would do a whole lot better than sweepstakes and jamborees, and tent sales and rebates, which simply have not worked. It would be much more substantive, and important because the American public is aware of the fact that small cars are less safe.

The final point on the issue of regulation I would like to state is that, in fact, what has happened here is that the industry is the regulator. By refusing to offer airbag, they are essentially regulating the American marketplace in not making those systems optional for the American purchaser.

I would like to now comment, if I could, specifically on the content of the bill itself.

First, I think the bill certainly provides a sufficient incentive for a manufacturer, although it may be overly generous considering the volume/price relationship of airbag systems. That is, the more that you manufacture, the cheaper it is.

I would like to urge the committee to consider, additionally, the pros and cons of offering a tax credit to the individual consumer/purchaser, rather than to the manufacturer, while applying the penalty to the manufacturer rather than to the consumer. In other words, doing exactly the reverse of what the bill proposes.

My reasons are that it is the consumer who is paying the price, and it seems to me that the consumer should reap the subsidy.

In terms of marketing strategy, in addition, the manufacturer would have to inform the consumer much more substantially about the airbag program, if the consumer were the beneficiary of the tax credit.

Additionally, if the manufacturers refused to make the systems available, and continued to refuse to make the systems available, they would not only be withholding safety protection, they would be withholding a tax credit from consumers.

As to the penalty, I think it should be imposed on the manufacturer for failing to sufficiently encourage the sales of cars with airbags. In addition, I think there would be a great deal of resentment and consumer resistance if the penalty were applied at the retail level to the consumer. I can only imagine the automobile dealers discussing this with potential buyers and complaining about the Government in the process.

Senator **Packwood**. Let me ask you a question. If the purpose of Senator Danforth's bill is to get airbags installed, and if it doesn't make any difference that the consumer knows about it or not so long as the airbag worked, why go to the trouble of the tax credit for the consumer? What additionally is gained over the tax credit to the manufacturer?

Ms. **Claybrook**. I would not apply the tax credit to the manufacturer. I would instead apply it to the consumer.

Senator **Packwood**. I understand, but what is gained by applying it to the consumer that you don't gain by applying it to the manufacturer?

Ms. **Claybrook**. It would still be a consumer choice as to whether or not to buy the airbag car. That is, they could either buy the airbag car or not buy the airbag car. If the consumer were the recipient of the subsidy, there would be a specific incentive to the consumer to do the purchasing of an airbag car. They would have two reasons to do it. One is because of the airbag, and the other is because of the subsidy.

Senator **Packwood**. I still don't understand. If you want every car to have an airbag, and if the manufacturer is faced with a $300 tax—assuming that it costs $300—if they don't put one on versus a $300 credit if they do, I am assuming that they are going to go the credit route, and then every car will have an airbag. That would seem to me, from the point of safety in this case, better than consumer choice, because some people may opt not to have one.

Ms. **Claybrook**. Even under Senator Danforth's bill, there will be consumer choice. That is, the manufacturer would have to gear the number of airbags they put into cars as to how many they anticipate they can sell under this system. So that choice would still exist.

Senator **Packwood**. I find it hard to believe that the manufacturer would make many cars without airbags for which they would pay a $300 tax on each one.

Ms. **Claybrook**. Under Senator Danforth's bill, it is the consumer who would pay the tax, of course.

Yes, under his bill, the consumer would pay an excise tax penalty if a nonairbag car were purchased. I was suggesting that the penalty certainly should be placed on the manufacturer and not on the consumer. I feel more strongly about that than I do on the other side, on the credit side, as to who gets the credit.

My thought was that in terms of marketing strategy and promotion, the automobile industry would have a greater incentive to promote the airbags for sale to the consumer if the consumer were the recipient of the subsidy, because they would not want to pay the penalty.

Senator **Packwood**. If that is what the bill says, I would hate to be an auto salesman trying to sell a car without an airbag, if you have to pay $300 more.

Ms. **Claybrook**. That is right.

Senator **Packwood**. That is not a strong selling point.

Ms. **Claybrook**. I agree, I think at the retail level there could be a lot of havoc with that kind of penalty.

I have two additional small suggestions. One is that the committee consider applying the penalty only to small cars sold without the improved safety system, since they are much more vulnerable and likely to cause death and injury than the larger cars. In this limited application, the penalty has an even greater justification than an across-the-board penalty, and I think would encourage improvement of the most vulnerable vehicles.

Additionally, the amount of the tax credit should be geared to the volume sales, since airbag systems are volume sensitive in their pricing. For example, last spring, several airbag suppliers testified that the retail price, with profit to the manufacturer of airbag systems sold in volumes of 2 million or more, was $185 compared to $240 for 500,000 airbags. So there is quite a substantial difference.

With regard to the Government's investment and the benefit to the Government, numerous studies have documented the cost to Federal as well as State and local governments of auto crashes. They are also expensive, as I mentioned previously, for employers.

Mr. Chairman, with your permission, I would like to submit for the record a copy of a Department of Transportation study, dated September 22, 1981, of estimated reduction in injuries and fatalities associated costs that would result from large scale seat belt usage. These same figures would certainly apply to large scale airbag usage, and would perhaps even be enhanced.

[Document follows:]

U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

Memorandum

Date SEP 2 2 1981

Reply to Attn of

Subject Data to Support Safety Belt Campaign

From Barry Felrice
Barry Felrice
Associate Administrator for
Plans and Programs

To Charles Livingston
Associate Administrator for
Traffic Safety Programs

In response to your request of September 9, 1981, we have developed some preliminary estimates of potential savings to governments, employers, and individuals from increased seat belt usage.

Methodology used in this analysis is generally consistent with methodology used in the regulatory analysis for Occupant Crash Protection (FMVSS 208). However, the estimates of automobile insurance premium reduction does not rely on Nationwide Insurance Company estimates as in the regulatory analysis. The restraint effectiveness rates used in the Nationwide estimate apparently differed from our own estimates. We have used our own estimates of effectiveness throughout this report and to remain consistent, the Nationwide premium reduction estimate was abandoned in favor of one based on our own estimate of seat belt usage effectiveness.

Following is a discussion of the specific programs. All estimates are in 1980 dollars. Note that savings or reduced costs may actually be realized through lower future increases, rather than actual decreases in current costs.

ESTIMATE OF REDUCTION IN FATALITIES AND INJURIES

An important part of this analysis is our estimate of the actual effect of increased seat belt usage on deaths and injuries.

The estimated savings in fatalities and injuries if belt usage increases to 35% or 70% total usage is determined by using the following assumptions and formulae:

SPEED LIMIT 55
It's a law we can live with.

1) Current seat belt usage is 10%, 1979 AIS 2-5 injuries were 426,000.

2) The formula for determining the number of people that would have been injured if no one currently wore restraints is as follows:

$$\frac{\text{current injuries}}{1 - (\text{usage})\ (\text{effectiveness})}$$

If current usage is 10% and the effectiveness of seat belts in reducing AIS 2-5 injuries is estimated by NHTSA at 65%*, then the number of people that would have been injured if no one wore restraints is 456,000.

3) The reduction in injuries is determined by the following formula:

Reduction in injuries = 456,000 x .65 effectiveness x usage

For 35% usage -- 104,000 injuries are reduced
For 70% usage -- 207,000 injuries are reduced

Subtracting current usage at 10% -- 30,000 injuries reduced, results in a reduction of injuries of 74,000 @ 35% usage and 177,000 @ 70% usage.

4) Comparing these reductions in injuries to current injuries (426,000) results in a reduction of 17% (74,000/426,000 @ 35% usage) or 42% (177,000/426,000 @ 70% usage).

5) When fatalities are averaged in with the injuries, the resulting savings are minimally affected. Total seat belt usage of 35% reduces injuries and fatalities by 17% and total seat belt usage of 70% reduces injuries and fatalities by 41%.

STATE AND FEDERAL PROGRAM PLANNING

We have identified several sources of tax revenue increases and expenditure reductions that could be realized by State and Federal Governments from an increase in seat belt usage. Revenue increases result from personal and corporate income taxes, as well as various sales taxes, that would be generated by increased production and consumption from persons who otherwise would have been injured or killed in motor vehicle accidents. Expenditure reductions could be experienced from reduced payouts and administrative costs associated with various public aid programs and the social security system. Potentially, this combination of reduced expenditures and revenue increases could improve the Federal Government's financial position by $1 billion annually with 35% usage and by $2.5 billion if usage is increased to 70 percent. For State and local governments, these savings are $242 million and $582 million, respectively.

---

* "Final Regulatory Impact Assessment - Amendment to FMVSS No. 208, Occupant Crash Protection," April 1981.

The methodology used to derive these estimates is illustrated in table 1, and figures 1 and 2.

Table 1 lists the breakdown of savings that could be realized by both Federal and State and local governments from reductions in social programs. Significant reductions could be realized in various public aid programs, and in the survivor and disability payouts of the social security system. Total annual savings could range from $736 million to $1.8 billion for the Federal Government and from $49 million to $117 million for the State governments.

Figure 1 shows the development of the estimate of increased tax revenue from higher output resulting from improved seat belt usage. This estimate was based on average employee output, which was computed using the GNP (adjusted for interest and dividends which for the most part accrue regardless of employee output) and the average number of people in the work force. This analysis indicates annual revenue of from $202-486 million for the Federal Government and from $173-417 million for State governments.

Figure 2 illustrates the estimate of revenue increases from personal income taxes. These increases occur because of additional income that would be earned because of less time lost to injuries and deaths. Potential revenues vary from 109 million to 264 million for the Federal Government and from 20 to 48 million for State governments.

Figure 3 is a summary of all revenue benefits that would accrue to State and Federal Governments from the two assumptions of increased belt usage as well as the current costs of low belt usage to those programs.

It should be noted that the lost time associated with motor vehicle accidents is a gross number. Additional production, in terms of medical supplies and services that result from higher death and injury rates have not been netted out of this estimate. Also, many employees have paid sick leave plans and, although their production is lost to their employer, their taxable income can remain unchanged. We do not know of any data that would allow us to adequately address these problems. For these reasons, however, it should be noted that the above estimates may be slightly over stated.

EMPLOYER PROGRAM SUPPORT

Savings to employees can be realized through reductions in employee health program costs, reductions in workman compensation costs, and through additional production resulting from fewer man-hours lost to death and injury. Potentially, these savings could amount to $1.7 billion annually if usage is increased to 35 percent (a 250% increase) and 4.1 billion if usage is increased to 70 percent (a 600% increase).

Figures 4, 5, and 6 detail the development of these estimates. Numerous data sources were used and these are specified in footnotes on each figure.

TABLE 1
SAVINGS FROM SOCIAL PROGRAM COST DECREASES 1/

ASSISTANCE CATEGORY	Total - Millions of 1979 Dollars	Multiplier - CPI All Items	Total 1980 Economics	Federal Share	State Share	% Attributed to Motor Vehicle Accidents 2/	Cost of Automobile Accidents- Federal Government (Millions)	Cost of Automobile Accidents - State Government (Millions)
Public Aid Programs								
Dependent Children	11,069	1.135	12,563	6,781	5,782	1	68	58
Blind	166	1.135	188	146	42	4	6	2
Disabled	4,381 4/	1.135	4,972	3,853	1,119	1.5	58	17
Medical	19,251	1.263	24,314	12,871	11,443	1.5	193	172
Subtotal							325	249
Administrative Cost (15%)							49	37
Social Security (OASDI) SDI Parts Only 6/	43,884	1.135	49,808	49,808	-	6.9 3/	3,437	0
Administrative Cost (15%)							516	0
TOTAL							4,327	286
Savings at 35% usage (.17 x Total Cost) 5/							736	49
Savings at 70% usage (.41 x Total Cost)							1,774	117

1/ Source of data unless otherwise stated: "Statistical Abstract, 1980."
2/ National Indirect Costs of Motor Vehicle Accidents.
3/ Accident Facts.
4/ 1978 dollars
5/ NHTSA estimates that a 35% usage rate would decrease injuries by 17% and that a 70% usage rate would decrease injuries by 41%.
6/ OASDI - Old Age Survivors Disability Insurance, SDI excludes old age portion.

FIGURE 1

REVENUE BENEFITS ASSOCIATED WITH INCREASED PRODUCTION TO FEDERAL AND STATE GOVERNMENTS FROM INCREASED BELT USAGE 1/

Total employment - 1979	96,945,000
Estimated annual growth in employment	3%
Estimated 1980 employment	100,000,000
GNP - 1979	2368.8 billion
CPI All Items multiplier	1.135
Estimated GNP - 1980	$2688.6 billion
Estimated GNP excluding dividends and interest 2/	2418.6 billion
Average annual production per employee (2418.6B/.1B)	$24186
Man-years lost to automobile accidents 3/	x241524
Value of lost production due to automobile accidents	$5,841 million
1978 Federal tax receipts	431.3 billion
1978 State tax receipts	371.6 billion
CPI All Items multiplier	1.263
Estimated 1980 Federal tax receipts	544.7 billion
Estimated 1980 State tax receipts	469.3 billion
Ratio of Federal tax receipts to GNP (545/2689)	20.3%
Ratio of State tax receipts to GNP (469/2689)	17.4%
Lost taxes to Federal Government - value of production (5841 x .203)	$1186 million
Lost taxes to State Government - value of production (5841 x .174)	$1016 million
Revenue to Federal Government from 35% seat belt usage rates (.17 x 1186) 4/	$ 202 million
Revenue to State Government from 35% seat belt usage rate (.17 x 1016)	$ 173 million
Revenue to Federal Government from 70% seat belt usage rate (.41 x 1186) 5/	$ 486 million
Revenue to State Government from 70% seat belt usage rate (.41 x 1016)	$ 417 million

1/ Source of Data: Statistical Abstract 1980.

2/ Source: 1980 Statistical Abstract, GNP reduced by taxable income from interest & dividends, and by interest earned by the Federal Government.

3/ Computed in Figure 5.

4/ NHTSA estimates that a 35% usage rate would decrease injuries by 17%.

5/ NHTSA estimates that a 70% usage rate would decrease injuries by 41%.

FIGURE 2

REVENUE BENEFITS ASSOCIATED WITH PERSONAL INCOME TAX TO FEDERAL AND STATE GOVERNMENTS FROM INCREASED BELT USAGE

Lost wages due to automobile accidents 1/	4,233 million
Federal tax rate at average wage level 2/	15.2%
Federal tax loss due to lost wages (4233 x .152)	643 million
Federal personal income tax revenue 1978 2/	180 billion
State personal income tax revenue 1978 2/	33 billion
Ratio of State to Federal personal income tax revenues 33/180	18.3%
State tax loss due to lost wages (643 M x .183)	118 million
Revenue to Federal Government from 35% seat belt usage rate (.17 x 643) 3/	109 million
Revenue to State Government from 35% seat belt usage rate (.17 x 118)	20 million
Revenue to Federal Government from 70% seat belt usage rate (.41 x 643) 4/	264 million
Revenue to State Government from 70% seat belt usage rate (.41 x 118)	48 million

1/ From Figure 5.

2/ Statistical Abstract, 1980.

3/ NHTSA estimates that a 35% usage rate would decrease injuries by 17%.

4/ NHTSA estimates that a 70% usage rate would decrease injuries by 41%.

FIGURE 3

SUMMARY OF REVENUE BENEFITS TO FEDERAL AND STATE GOVERNMENTS FROM INCREASED BELT USAGE
(MILLIONS OF DOLLARS)

	FEDERAL			STATE		
	CURRENT COSTS	SAVINGS @		CURRENT COSTS	SAVINGS @	
		35%	70%		35%	70%
Social aid cost reductions	$4327	$ 736	$1774	$ 286	$49	$117
Revenue from increased production	1186	202	486	1016	173	417
Revenue from personal income tax	643	109	264	118	20	48
TOTAL	$6156M	$1047M	$2524M	$1420	$242	$582

Figure 4 shows the potential employee savings from group health plans and workmen compensation costs. Potential annual savings amount to from $1.0 billion to $2.4 billion.

Figure 5 shows the savings to employees from increased production due to fewer employee deaths and injuries. This estimate values these savings at the average employee wage rate. It could alternately be valued at the value of each employee's production (which would increase it by about 40%, or at the employee's contribution to profits, which would decrease it considerably; we currently do not have data on this estimate). The current estimate shows potential savings of from $0.7 billion to $1.7 billion annually.

Figure 6 summarizes the current costs and total potential savings to employers from increased belt usage.

INDIVIDUAL FAMILY BUDGET

Benefits to individual family budgets would probably accrue from lower automobile and health insurance premiums. Although reduced injuries and deaths from increased belt usage would also lower government expenditures, we do not think it would be appropriate to assume that this would result in reduced taxes. Tax rates are set primarily through the political process and are not particularly responsive to changes in expenditures. This is especially true when the changes are relatively small, as in this case (estimates of changes in expenditures are covered under State and Federal program planning, elsewhere in this memo).

Estimates of individual savings from reduced insurance costs are developed in figures 7 and 8. Savings in automobile insurance could amount to $27 per insured car with a 35 percent usage rate and $65 per insured car with a 70% usage rate. Health insurance savings would be about $1.95 per insured individual at a 35% usage rate and $4.70 per insured individual at a 70% usage rate.

In addition to these savings, it should be noted that individuals who are themselves involved in accidents, often suffer financial losses in terms of lost wages. With an average working year of 250 days and assuming an average of 10 days lost per disabling injury (see figure 5), the average injured person stands to lose 4 percent (10/250) of his income because of disability resulting from the automobile accident. (Persons with sick leave benefits would lose less than 4 percent, and possibly none of their income depending on their benefit plan and the length of their disability.) At the average wage level of $17,526 (see figure 5), the 4 percent loss would amount to over $700.

FORMULAS

You requested that we provide formulas for individual, State government, and employer organizations to use in computing their own potential savings from increased belt usage. Following are some very basic formulas, based on per capita costs using estimates in this analysis.

INDIVIDUALS:

For 35% usage rate: (# of insured automobiles x $27) + (number of insured family members x $2.00) = annual savings

For 70% usage rate: (# of insured automobiles x $65) + (number of insured family members x $4.70) = annual savings

FIGURE 4

ESTIMATES OF TOTAL EMPLOYER SAVINGS FROM GROUP HEALTH PLANS FROM INCREASED BELT USAGE

GROUP HEALTH INSURANCE COSTS:

Loss paid out of automobile insurance policy (1980) 1/	$12.3 billion
Ratio of payments from group health plans to payments from automobile insurance 2/	.33
Estimated group health payments for motor vehicle accidents	$ 4.1 billion
Ratio of loss payments to administrative costs 3/	1.26
Estimated total costs of automobile accidents to group health plans	$ 5.2 billion
Average portion of group health plan paid by employers 4/	.65
Cost to employers of motor vehicle deaths & injuries - insurance	$ 3.4 billion

WORKMENS COMPENSATION COSTS:

1978 Workmens Compensation Payments (less black lung) 5/	8,705.9 million
1980 CPI all items multiplier	1.263
1980 estimated Workmens Compensation Payments	10,996 million
Percent of job-related deaths involving passenger cars 6/	.224
Estimated Workmens Compensation for motor vehicle accidents	2,463 million
. Total Employer Costs (Group Health and Workmen's Comp)	5.863 billion
Estimated injury reduction from 35% belt usage	.17
Savings to employers from 35% belt usage	1.0 billion
Estimated injury reduction from 70% belt usage	.41
Savings to employers from 70% belt usage	2.4 billion

1/ Source: "Bests Aggregates and Averages."

2/ Source: "Automobile Injuries and their Compensation in the U.S., All Industry Research Advisory Committee," Volume I, p.126.

3/ Source: Derived from data, "Bests Aggregate and Averages."

4/ Source: Estimated using data supplied by the Health Insurance Institute.

5/ Source: "Statistical Abstract, 1980."

6/ Source: Bureau of Labor Statistics, "Survey of Occupational Injuries." (28 Percent reduced to 80 percent to reflect automobile portion -- .28 x .8 = .224.)

FIGURE 5

INCREASED PRODUCTION RESULTING FROM INCREASED SEAT BELT USAGE 1/

Worker deaths from motor vehicle accidents away from work (1979)	25,800	
Worker deaths from motor vehicle accidents on the job 8/	3,696	
Total	29,496	
Average number of days production lost per death	x 150	
Total days lost due to death of employees		4,424,400
Workers injured by motor vehicle accidents away from work (1979)	1,000,000	
Workers injured by motor vehicle accidents on the job 8/	616,000	
Total	1,616,000	
Average number of days production lost per injury	x 10 2/	
Total days lost due to injury of employees-current year		16,160,000
Total days lost due to injury of employees in previous years 7/		54,891,731
Annual workdays lost due to motor vehicle accidents		75,476,131
Average number of work days per year 3/		250
Average number of manyears lost per year motor vehicle accidents (77,203,333/250)		301,905
Average number of manyears lost - passenger cars (.8 x 301,905) 4/		241,524
Mean employment income 1980 5/		x 17,526
Value of lost production due to passenger car accidents		4,232,949,624
Injury reductions from 35% belt usage 6/		.17
Increased production at 35% belt usage		.7 B
Injury reduction from 70% belt usage 6/		.41
Increased production at 70% belt usage		1.7 B

1/ Source: All data is from "Accident Facts 1980" edition unless otherwise noted.

2/ Data in accident facts indicates an average of 7 days lost per disabling injury not including, time lost on the day of the accident, and further medical treatment or check-ups following the injured persons return to work. To account for these added days, we will estimate an average of 10 days lost per injury.

3/ Source: NHTSA estimate.

4/ Estimate - passenger cars make up 80% of all vehicle registrations.

5/ Source: "Current Population Report," Series P-60 # 127, Bureau of Census, Department of Commerce.

6/ Source: NHTSA estimates.

7/ Derived from ratio of future days lost to day lost in current year in accident facts (120/45 = 2.67)

8/ Derived from BLS Survey of Occupational Injuries and Illnesses (28% of deaths at job involve motor vehicles) and data in accident facts (total on the job deaths and injuries).

FIGURE 6

POTENTIAL SAVINGS TO EMPLOYERS FROM INCREASED BELT USAGE

	COSTS	SAVINGS	
		35% USAGE	70% USAGE
Insurance Costs	5.9 billion	1.0 billion	2.4 billion
Lost Production	4.2 billion	.7 billion	1.7 billion
TOTAL	10.1 billion	1.7 billion	4.1 billion

FIGURE 7

INDIVIDUAL SAVINGS FROM AUTOMOBILE INSURANCE PREMIUM REDUCTIONS

1980 Automobile insurance payouts for incurred losses 1/	12.3 billion
Ratio of loss payments to administrative costs 2/	1.26
Estimated total costs of automobile accidents to automobile insurance plans	15.5 billion
Injury reduction at 35% usage 3/	.17
Injury reduction at 70% usage	.41
Annual automobile insurance premium reduction at 35% usage (.17 x 15.5)	2.6 billion
Annual automobile insurance premium reduction at 70% usage (.41 x 15.5)	6.4 billion
Registered passenger cars 1980 4/	122,595,000
Insured Vehicles (.8 x 122,595,000)	98,076,000
Average annual premium reduction per vehicle at 35% usage (2.6B/98,076,000)	$27
Average annual premium reduction per vehicle at 70% usage (6.4B/98,076,000)	$65

1/ "Bests Aggregates and Averages."

2/ Nationwide Mutual Insurance Companies, Docket No. 74-14, Notice 20,100.

3/ NHTSA estimates.

4/ MVMA "Facts and Figures 1981."

FIGURE 8

INDIVIDUAL AND GROUP HEALTH INSURANCE SAVINGS FROM INCREASED BELT USAGE

Estimated total costs of automobile accidents to group health plan 1/	5.2 billion
Average portion of group health plans paid by employees 2/	.35
Cost to individuals of payouts from group health plans for automobile accidents (.35 x 5.2)	1.82 billion
Percent of total health premium covered by group health plans 2/	.83
Total costs to individuals of health insurance payouts for automobile accidents (1.82/.83)	2.2 billion
Injury reduction at 35% usage 3/	.17
Injury reduction at 70% usage 3/	.41
Annual health premium reductions at 35% usage (.17 x 2.2)	374 million
Annual health premium reductions at 70% usage (.41 x 22)	902 million
1980 U.S. population 4/	226.5 million
Percent of population covered by health insurance 5/	85%
Persons covered by health insurance	193 million
Annual health insurance savings per person at 35% usage	$1.95 million
Annual health insurance savings per person at 70% usage	$4.70

1/ Derived from Figure 4.

2/ "Source "Book of Health Insurance Data 1980, 1981," p.27

3/ NHTSA estimate.

4/ 1980 Census.

5/ "Source "Book of Health Insurance Data 1980, 1981," Health Insurance Institute.

STATE

For 35% usage rate: # of people in jurisdiction x $1.30 = annual savings

For 70% usage rate: # of people in jurisdiction x $3.10 = annual savings

These numbers are derived by dividing total State benefits by the U.S. population of 226 million people. Numbers are not applicable to local jurisdiction: (country, cities, etc.).

EMPLOYERS

For 35% usage rate: # of employees x $17 = annual savings

For 70% usage rate: # of employees x $41 = annual savings

These numbers were derived by dividing total employer benefits by the estimated number of workers in the U.S. (100 million).

It is possible that, with more research, a more sophisticated approach could be found to these formulas. A formula for localities would require considerable research into local revenue collection practices.

If you have any questions or comments regarding these estimates, feel free to contact Larry Blincoe in the Office of Program and Rulemaking Analysis on extension 61581.

#

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
WASHINGTON, D.C. 20590

THE ADMINISTRATOR

NOV 28 1980

E. M. Estes, President
General Motors Corporation
General Motors Building
Detroit, Michigan 48202

Dear Mr. Estes:

As chief executive of one of the world's major automobile manufacturing companies, you hold a number of important trusts. Many thousands of workers depend on your guidance of the company for their livelihood. Your stockholders expect your business judgments to result in a reasonable return on their investments. Dealers, who sell your products, depend on your giving them a saleable and serviceable product that will satisfy their customers.

As important as all of these constituents are, your most basic trust is to the people who use your automobiles and trucks. Not only do they depend on these vehicles for their transportation needs, but their very life and limb frequently depends on the quality of the safety performance you design into them.

From time to time, your company has taken special steps to enhance vehicle safety. For example, General Motors anticipated our motor vehicle safety standards in the late 1960's with improved side impact intrusion resistance; GM has taken a lead in building vehicles like the X-body with improved structural crashworthiness; and GM is still the only company that has built cars with air bags for sale to the general public.

It can be said without contradiction that the advances in safety built into cars in the past have not compromised your responsibilities to your workers, your stockholders, or your dealers. In fact, it makes simple, good business sense to satisfy the public's need and demand for safer vehicles. Indeed, over 60,000 Americans owe their lives to the safety advances made in the last 12 years under the aegis of our motor vehicle safety program.

With the introduction of large numbers of small cars on American highways, we can anticipate an increase of 10,000 to 15,000 lives lost per year by 1990. You should consider that in the years ahead

SPEED
LIMIT
55
It's a law we
can live with.

the automakers' view that safety has no market value could prove to be just as wrong as their attitude of a year or two ago toward fuel efficiency. The long-held consumer preference for big cars in the United States was due, in some part, to the feeling that bigger, heavier cars are safer in a crash. Now, as cars must get lighter to achieve greater efficiency, safety looms larger in the purchase decision. And with good reason. In large car/small car crashes, 85 percent of the fatalities occur to the small car occupant. Perhaps that's why safety belt usage occurs in only nine percent of the large cars but in 18 percent of the small ones.

Motor vehicle crashes in the United States are already the largest killer of citizens under age 44. One baby in 40 born today will die in a motor vehicle crash, and one in twenty will be injured. Highway crashes are a significant cause of epilepsy and the major cause of paraplegia in this country. Approximately one-third of all occupational injuries result from motor vehicle crashes costing employers billions of dollars in lost productivity and talent. Approximately 140 Americans die on the highway each day, the equivalent of a major airline crash 365 days a year. Every ten minutes another person is killed, and every nine seconds another is injured -- every day of the year.

The question facing public health officials and motor vehicle manufacturers is: are there readily available remedies within the present state-of-the-art. As we both know, there are many. The experimental safety vehicles produced by this agency in the past several years supply just one example of the types of designs and materials which can save literally thousands of lives in this country each year. They are designed to protect occupants in frontal and side impact crashes up to about 50 miles per hour. You, of course, are aware of many other innovations which could similarly serve the public.

Our Federal safety standards are and were intended by Congress to be minimum standards. The tragedy is that many manufacturers have treated the standards more like ceilings on safety performance rather than floors from which to improve safety. For example, there are many safety standards which apply only to passenger cars, yet some manufacturers have not applied them to light trucks and vans without a Federal requirement to do so.

Recognizing the need and the many opportunities available to your company to ameliorate the current and anticipated trauma on our highways, there are a number of priority safety performance features which should and readily can be incorporated in your vehicles as you improve them and redesign them in the next few years -- important opportunity years. The key areas of vehicle design which can significantly increase the likelihood of surviving a crash without serious injury are:

1. Occupant restraints -- to prevent or soften the second collision of the occupant with the vehicle's interior.
2. Crash energy management -- to absorb, control, and reduce crash forces on the occupants with improved structural design.
3. Structural integrity -- to prevent occupants from being ejected, trapped, burned, or crushed by collapse of the occupant compartment.
4. Crash avoidance -- the ability of a vehicle to prevent crashes or reduce their severity, for example, through better handling, braking, visibility, signaling, and danger diagnostic systems.
5. Pedestrian protection -- the ability of a vehicle to prevent or reduce injuries to pedestrians in the inevitable collisions between vehicles and people.

If there is one most important lesson we have all learned, it is that building safety into the vehicle so that it is automatic or passive is far more effective than relying on hundreds of millions of people to individually take special safety actions repeatedly, countless times without fail. And we also know that it is cheaper by far to design in safety at the drawing board stage of production than to add on safety features afterwards.

The following list discusses these and other areas for obvious improvement, in many cases with minimal or even negligible cost.

In many instances the Department of Transportation is proceeding with the development of safety standards in these areas, but as you know, that is a laborious process which must consider the particular problems of the least capable manufacturers, and it does not supercede the responsibility of individual companies to enhance the safety quality of their vehicles:

I. Frontal Crashworthiness

A. Improved Occupant Crash Restraints

Each year frontal crashes kill nearly 20,000 people and injure hundreds of thousands more as occupants of passenger cars, light trucks and vans. With automatic crash protection, an occupant's risk of death and serious injury can be reduced by about 50 percent. The automatic crash protection standard is estimated to save nearly 250,000 lives and prevent more than a million serious injuries between now and the year 2000.

Air Bags - Not since 1976, when GM stopped selling cars equipped with air bags, has the American public been given a chance to purchase -- at any price -- a new car built with air bag automatic crash protection. This choice of an unobtrusive and potentially superior crash protection system has been denied the American public for far too long at great expense in lives and injuries.

Front Safety Belts - The 35 mph frontal barrier tests we have conducted under the New Car Assessment Program indicate that many existing restraint systems are not performing adequately at speeds above 30 mph. In many cases, the belts allowed excessive excursion of the occupant torso, resulting in violent head strikes. These problem belts should be corrected immediately.

Cars such as the Citation, Omni/Horizon, Mustang/Capri, and Fiat Strada have demonstrated that an added margin of safety, over the 30 miles per hour protection called for in the standard, can readily be built into current vehicles.

Rear Safety Belts - In many cars, the accessibility of the rear seat belts remain a serious problem which discourages use. Those occupants sufficiently motivated to dig for the rear belts may be rewarded with cut hands from sharp objects, or as a minimum, with dirty hands. Accessibility of rear belts needs improvement. Moreover, rear seat three-point belts should be offered for additional protection to rear seat occupants. They have been offered by Volvo, Mercedes, and a few others for many years as standard equipment.

Comfort and Convenience of Safety Belts - Inadequate attention is paid to the comfort and convenience of seat belts. Agency studies on the comfort and convenience of safety belts show that many current safety belts tend to discourage rather than encourage usage. The manufacturers can and should build easier to use and more comfortable belt systems using the numerous techniques available to automotive designers.

Child Safety - More attention must be given to accomodating child restraints. Belts should be suitable for attaching child restraints, and anchors for top tethers should be provided to encourage their use. GM is at least now predrilling holes for tether attachments in some of their cars, but built in anchors would greatly facilitate usage.

B. Safer Vehicle Interiors

Steering Wheel, Column and Hub - Current regulations have minimum requirements for steering column movement to provide for controlled collapse to cushion the driver in a crash. However, our crash testing and accident data analysis indicate that many steering wheels and columns have undesirable characteristics which are not addressed by the safety standards. These include inadequate collapse when subjected to offset loading, inadequate collapse of tilt wheel columns in commonly used positions, excessive vertical displacement of steering columns, and aggressive or inadequately padded steering wheels and hubs.

In several of our new car assessment tests, the steering column displaced rearward or upward and caused severe loading to the dummy head and chest. This was particularly the case with some of the vehicles with transverse, front wheel drive engines. Steering column performance depends to a large extent on a column design which does not allow the column to be loaded by components in the engine compartment.

Possible design solutions to steering column problems include adding a collapsible section, improving the energy absorbing characteristics of the column, designing the column assembly to prevent loading by vehicle components under the hood, and providing an energy absorbing column that will absorb energy in bending and shear as well as in the axial direction. Based on engineering assessments, the costs of any of these modifications should not exceed $15 per vehicle even if they were made as running changes without waiting for major vehicle design. Many companies whose current designs just meet the minimum Federal requirements have prepared improved designs which could reduce the potential for injuries to the head and chest. These improved designs should be incorporated into cars without delay.

Interior Protection for Children - Although over 90 percent of our children under age 5 travel unrestrained, and cars are not equipped with restraint systems for these children, minimal attention is paid by manufacturers to the safety of unrestrained children. Padding is not provided on the lower dashboard in most cars. Heater controls, gear shift levers, radio knobs, etc., are not designed with the protection of children in mind. On the presumption that most occupants would be belted, the original safety standards did not address padding or interior protrusions on the lower dashboard. Recent studies by GM have heightened our awareness of how easily out-of-position occupants, particularly children, could be injured by hard points and protrusions on the lower dashboard. More smooth and padded surfaces in vehicle interior designs and elimination of injury causing protrusions will reduce injuries, particularly to children, as the Insurance Institute for Highway Safety has documented.

Laminated Windshields - The French have been pioneering the use of a layer of plastic on the inside surface of windshields to reduce laceration injuries in crashes. This would require an amendment to the Federal glazing safety standard, and the agency would appreciate your comments on the potential of such a change to reduce injuries.

C. Safer Vehicle Structure

Crashworthy Structure - Considerable improvement has been made in the frontal crashworthiness in some U.S. vehicles during the past 5 years. However, because smaller vehicles are rapidly increasing and are involved in more severe collisions, increased crashworthiness is needed in order to maintain the level of safety which currently exists in the average size U.S. car. Manufacturers have demonstrated the capability in their more recently designed vehicles to reach toward this goal and should meet the challenge of small car safety through further improvements in structure for these cars as the Department of Transportation (DOT) has done with its Research Safety Vehicles (RSV).

II. Side Impact Protection

Each year, side impact crashes kill nearly 10,000 people and injure about 100,000 people. Yet little attention has been paid by vehicle designers to side crash protection. There have been practically no improvements in side impact occupant protection since the door beam was introduced in 1969. NHTSA is developing test devices to assist manufacturers in improving the safety of vehicles in side impact, but manufacturers should develop improved side impact resistance and incorporate improvements in production without waiting for a new Federal standard.

Some examples of the improvements that can readily be made are:

(a) strengthened doors, door frames, door hinges and latches to prevent intrusion into the occupant compartment;

(b) improved padding on the doors and door frames to cushion impacts;

(c) design of glazing retention to soften the impact of the occupant's head and to prevent ejection of the occupant;

(d) improved seat structure design to cushion side impact forces.

III. Rear and Rollover Crash Protection

Each year rollover and rear end crashes kill nearly 6,000 occupants of passenger cars, light trucks, and vans and injure many thousands more people.

Fuel System Integrity - Fuel tank design and location are well below the state-of-the-art knowledge. We were disappointed to observe how many large cars failed the fuel system integrity test in our 35 mph crash test program. Most of the smaller cars passed this test. The improvements which have been incorporated in some small cars, such as the Citation, Omni/Horizon, and Mustang/Capri, can and should be applied to large cars without delay.

Occupant Compartment Integrity - The tragic loss of life in fiery crashes could also be reduced by improved design of a fire resistant barrier behind the rear seat. Such a barrier should separate the occupants from gasoline vapors in a rear end crash. As vehicles are currently designed, these vapors too often ignite and travel directly into the occupant compartment in a rear end crash.

Rollover Crash Protection - Vehicles have not been adequately designed to minimize ejection, which is currently not regulated but is a major contributor to death and injury. Nearly 20 percent of crash fatalities occur in rollover crashes, where the risk of ejection and injury is nearly ten times greater than in non-rollover crashes. Structural integrity design features to strengthen the roof and improved glazing and door latching can improve occupant safety in rollover crashes and are well within the current state-of-the-art.

Head Restraints - Many adjustable head restraints are of reduced value in service because in normal use they are left in their lowest position. In this position, most are too low to provide much protection for many occupants. Head restraints should be designed to protect a major segment of the population without adjustment. This can be done without overly restricting rearward visibility as demonstrated on Volvos, Saabs, and Chevettes. In addition, the rear of the head restraint should be designed to reduce injury to rear seat occupants who might strike the head restraint during a frontal collision.

Improved Seat Track and Seat Back Design - The crash tests of our New Car Assessment Program have revealed a number of seat track and seat back failures. The automakers should review their designs to insure that seats do not fail catastrophically in crashes, and that in frontal crashes the backs of front seats should be strong enough and well padded to provide protection for unrestrained rear seat passengers. This is particularly important for the protection of children.

IV. Crash Avoidance

1. Brake Lining Wear Indicators

Brake lining wear indicators are already used on some vehicles and should be applied more widely. Obviously, the presence of an indicator is a desirable safety and consumer cost savings feature.

2. Low Tire Pressure Indicator and "Run-Flat" Tires

Like brake lining wear indicators, low tire pressure indicators would provide safety and fuel economy benefits to the consumer.

Low tire pressure indicators could save hundreds of lives and several million barrels of oil each year if introduced as original equipment on all new cars and trucks. The technology exists for units replaced at the valve stem and immediate implementation is possible.

Run-flat tires provide safety and convenience on passenger cars. Some European models already use a run-flat tire as standard equipment. American tire manufacturers should be encouraged to develop their own versions of run-flat tires. The auto industry in turn should incorporate run-flat tires into future vehicle development plans as soon as possible.

3. Tire Reserve Load

Many vehicles, especially light trucks and vans, currently have tire reserve loads which are marginal; tire reserve loads on these vehicles should be increased to provide adequate protection. This is especially important as motorists accustomed to large cars shift to small cars and overload them more often.

4. Silicone Brake Fluid

Silicone brake fluid would provide consumer maintenance and safety benefits by improving durability and reducing corrosion in brake systems.

5. Visibility

A common complaint among consumers is poor visibility, particularly in the rear quarter directions. Visibility has always been a secondary consideration to styling.

Excessively large "C" pillars and louvered rear windows used to add "zing" to the look of some vehicles, such as Trans Ams, seriously cut down rear visibility. Motor vehicle stylists can easily remedy this type of safety deficiency.

6. High Mounted Brake Lights

Several scientific studies show that rear end crashes can be substantially reduced through the use of a centered, single high mounted rear stop light signal. Today, cars are not being built with such stop lights, but they are easy and relatively inexpensive to install in newly designed vehicles.

V. Pedestrian Safety

With some 8,000 people being killed and many more injured each year as pedestrians are struck by motor vehicles, there is an urgent need for manufacturers to design the front ends of vehicles to reduce and minimize injuries. Our research programs have shown that soft front bumpers, hood and fender edges can reduce injuries and the likelihood of death in these crashes. With this advancement in our knowledge and the state-of-the-art, it is disheartening to see companies still spending money to install stylistic hood ornaments that inevitably inflict injuries. Although many companies removed them in the late 1960's, most companies have re-introduced the hood ornament which, although now spring loaded, can exacerbate injuries to pedestrians, particularly small children whose faces are at the level of the ornament. This practice should be stopped and the trend to soft front bumpers accelerated.

For several years during the mid-1970's, the major car sellers prepared and submitted to the National Highway Traffic Safety Administration a corporate vehicle safety progress report. This should be reinstituted. It could catalog new and innovative safety performance and features that you have put into your products. It should show the public that you dedicate a portion of your company's resources to safety progress. If this effort is effectively advanced, you will see your investment more than returned.

I look forward to learning of the initiatives you might take in the near future to improve the safety of your customers when they travel in your cars.

Sincerely,

Joan Claybrook

Joan Claybrook

Identical letters except for variation as seen in third paragraph of first page sent to the following manufacturers. GM letter is sample letter (cy of third par., 1st page, variations attached.)

E. M. Estes, President
General Motors Corporation
General Motors Building
Detroit, Michigan 48202

Philip Caldwell, President
Ford Motor Company
The American Road
Dearborn, Michigan 48121

Lee A. Iacocca
Chairman of the Board
Chrysler Corporation
P.O. Box 1919
Detroit, Michigan 48288

James W. McLernon, President
Volkswagen of America, Inc.
27621 Parkview Blvd.
Warren, Michigan 48092

The following manufacturers received identical letters with the third paragraph variation, page 1, omitted.

W. Paul Tippett, Jr., President
American Motors Corporation
27777 Franklin Road
Southfield, Michigan 48034

Mr. R. Recchia, President
Fiat Motors of North America, Inc.
155 Chestnut Ridge Road
Montvale, New Jersey 07645

Mr. K. Yoshizawa, President
American Honda Motor Company, Inc.
100 West Alondra Blvd.
Gardena, California 90247

Tervo Maeda, General Manager
Nissan Motor Company Limited
P.O. Box 1506
Englewood Cliffs, New Jersey 07632

Mr. I. Makino, President
Toyota Motor Sales--USA, Inc.
2055 West 190th Street
Torrance, California 90509

INSERT as appropriate:

(Ford)

Ford initiated the upgrading of vehicle safety back in 1956 with safety belts, padded instrument panels, recessed-hub steering wheels, and interlocking door latches. Ford was more recently a leader in substantially upgrading the safety of its vans even though it was not required by Federal standards.

(Chrysler)

Chrysler was a partner in the development of the Calspan/Chrysler Research Safety Vehicle, some features of which were incorporated into its production cars.

(VW)

Volkswagen was a leader in introducing automatic belts on its Rabbit models and has constructed two advanced safety vehicles, the IRVW and the ESVW, that have advanced our thinking about the high levels of safety that can be built into cars providing excellent fuel economy.

1-13-09

GENERAL MOTORS CORPORATION
GENERAL MOTORS BUILDING
DETROIT 48202

E. M ESTES
PRESIDENT

December 15, 1980

Ms. Joan Claybrook
Administrator
National Highway Traffic
Safety Administration
U.S. Department of Transportation
Washington, D.C. 20590

Dear Ms. Claybrook:

Thank you for your letter of November 29, 1980.

Most appropriately, your letter speaks to the many important challenges the automobile industry faces in our future efforts to enhance motor vehicle safety. Through our extensive programs of research, development and testing, General Motors will continue to aggressively pursue solutions to a number of the complex issues you raise.

Automotive design for safety is, and has always been, a priority at General Motors. I can assure you that our future product plans will continue to reflect the steadily advancing technological competence of both our people and facilities. General Motors shares your concern for sustained progress in the field of motor vehicle safety.

Sincerely,

Pete Estes

810113009

1-13-8

W. Paul Tippett
President and Chief Operating Officer

December 18, 1980

Ms. Joan B. Claybrook, Administrator
National Highway Traffic Safety
Administration
U.S. Department of Transportation
400 Seventh Street, S.W.
Washington, D.C. 20590

Dear Ms. Claybrook:

Thank you for your letter dated November 28, 1980, concerning future vehicle safety plans. We find your observations and projections interesting.

It has been our desire to have a productive relationship with your organization. We believe that a mutual commitment by the manufacturers and the National Highway Traffic Safety Administration is essential for continuing improvement in traffic safety.

I want to assure the National Highway Traffic Safety Administration that American Motors will continue its determination to design and build vehicles reflecting our sincere interest in the safety of those who buy and operate them.

Sincerely,

1-13-07

CHRYSLER
CORPORATION

LEE A. IACOCCA
CHAIRMAN OF THE BOARD
CHIEF EXECUTIVE OFFICER

December 11, 1980

Honorable Joan Claybrook
Administrator
National Highway Traffic Safety Administration
400 Seventh Street, S. W.
Washington, D. C. 20590

Dear Ms. Claybrook:

We appreciate the time you have taken to write to us during what must be a particularly demanding period for the Administrator of NHTSA.

We have distributed your letter to the responsible people within Chrysler Corporation. Your recommendations will be given full consideration in the definition of our future products.

Sincerely yours,

8101130007

DETROIT, MICHIGAN 48288 [illegible]

insurance institute for highway safety

the highway loss reduction
Status Report

Vol. 16, No. 9 June 24, 1981

Promoting Belt Use: Lessons From the Past

In view of indications that federal safety officials are considering a multimillion dollar promotional campaign in an effort to increase safety belt use, Status Report *is providing the following chronology of past educational efforts and their results.*

The latest government observations of manual seat belt use indicate that 89 percent of all drivers are unrestrained. This represents a decline in belt use over the past decade.

Studies show that manual seat belt systems provide crash protection vastly superior to no restraints at all – if they are used. In recent years, a variety of media and related educational campaigns have been carried out to try to increase the number of people who voluntarily use their seat belts. These campaigns are reviewed below:

- In 1968, the National Safety Council (NSC) used the equivalent of $51.5 million in media time and space for public service announcements to encourage seat belt use. Similar NSC campaigns were conducted in 1972 and 1973. Result: interviews indicated *no change in claimed seat belt usage.*

- In Great Britain, a three-year campaign was launched in 1968 to promote road safety in general and the use of seat belts in particular. This campaign, which involved controlled experiments in the use of media advertising, was continuously monitored by observations of belt use. A small increase in usage was reported during the campaign, but it was only temporary. *After the campaign, belt use dropped to about the same level as before.*

- A 1969 campaign in Toronto used television, newspapers, posters, and group sessions in schools and businesses to try to influence seat belt usage. However, observations indicated that *the use of belts in vehicles involved in collisions did not change significantly from the pre-campaign trend.*

- In 1971-1974, informational campaigns to increase seat belt wearing were carried out in Sweden. During this period, wearing rates for drivers and front seat passengers on weekdays in rural areas reportedly increased from about 20 percent to about 30 percent. The study was based on observations of seat belt use, and researchers said *it "seemed likely" that the increase was attributable to the promotional campaigns.*

- In 1971, a number of radio and television seat belt messages from among those produced by the National Safety Council, the American Safety Belt Council, and the Department of Transportation (DOT) were evaluated by expert and lay panels. There was wide disagreement about which ones the panel members thought would be effective in encouraging people to use their belts. The experts emphasized entertainment value and avoidance of the "scare approach," while the lay panel rated highly those messages with "scare content." Subsequently, materials selected according to the panels' ratings were shown in three communities. Observations indicated that *post-campaign seat belt use was about the same as pre-campaign use in all three communities.*

(Cont'd on next page)

The Insurance Institute for Highway Safety is an independent, nonprofit, scientific and educational organization. It is dedicated to reducing the losses—deaths, injuries and property damage—resulting from crashes on the nation's highways. The Institute is supported by the American Insurance Highway Safety Association, the American Insurers Highway Safety Alliance, the National Association of Independent Insurers Safety Association and several individual insurance companies.

Promoting Belt Use: Lessons From the Past

(Cont'd from page 1)

- During a nine-month period in 1971-1972, a study of the effects of televised seat belt commercials was carried out by the Insurance Institute for Highway Safety. In the study, a package of commercials was shown intensively during prime and other selected times on one cable of a dual-cable television system designed for marketing studies in a medium-sized mid-Atlantic city. While one cable of 6,400 households received the messages, another cable of similar size, serving households only a few doors away from the message recipients, did not. If this campaign had been sponsored on a national basis, it would have cost about $7 million in 1972 dollars.

Before and during the campaign, measurements were taken of observed belt use in the city. License plate numbers of the observed automobiles were also recorded. Matching license information with addresses, researchers determined whether observed drivers lived in households with cables carrying the seat belt messages. From this information, researchers concluded that the campaign had *no effect whatsoever on seat belt use. Before, during, and at the close of the campaign, belt use levels were virtually identical for those with the cable carrying the commercials and those with the other cable – as well as for others in the city not receiving either cable.* In all cases, belt use did not increase and was less than 20 percent throughout.

- In France, the government tried to increase voluntary use of seat belts with a six-month promotional campaign in 1973. A study near the end of the campaign indicated *a maximum usage rate not significantly different from the pre-campaign level. This inability to raise usage to an acceptable level was one of the arguments used to pass belt use legislation later in 1973.*

- Ontario also attempted to promote voluntary belt usage for several years before enacting a mandatory use law. However, the promotional campaign, which began in June 1974, *increased usage only two percent after nine months.* (It was later believed that this campaign facilitated acceptance of the mandatory belt use legislation introduced the following year.)

Other evaluations of seat belt promotional campaigns in Canada have been conducted, but *there has been limited evidence that these campaigns had any tangible benefits in terms of producing sustained increases in seat belt usage rates.*

- The DOT spent $750,000 during 1972-1978 to develop, print, and distribute 10 pamphlets on the importance of belt use, which were made available to elementary schools, driver education teachers, college and university administrators of driver education preparation programs, audiovisual centers, insurance companies, and others. In addition, DOT spent $82,500 on combined safety belt use/drunk driving television spot commercials, and undisclosed amounts on promotion of seat belt use in the department's films, slide shows, and public service radio commercials; these received an untold amount of free media exposure. The result was *no discerned effect on belt usage.*

- In 1977, Motorists Information, Inc., an organization formed by the four domestic automobile manufacturing companies specifically to promote belt use, undertook a $1.75 million media blitz in Detroit and surrounding towns to increase belt use. The campaign involved both the electronic media and billboard ads. Touted by Motorists Information and the manufacturers as having a high chance of success, the campaign's results were measured on October 3, midway through the 10-week campaign.

The measurements, taken by the Insurance Institute for Highway Safety, were of actually observed seat belt use at 10 representative Detroit sites and along many miles of the city's highways. Observations were made before, during, and after the campaign. The Institute found that at these sites, *only five percent of drivers were wearing lap belts, and eight percent were wearing lap/shoulder belts. Only six percent of passengers were wearing shoulder belts.* Because of the observational technique, lap belt use for passengers not wearing shoulder belts, as in older cars with separate lap and shoulder belts, could not be observed.

These usage rates were "even lower than safety belt use levels observed by us in Detroit at the same sites in the spring of 1976" the Institute reported.

Subsequently, the Department of Transportation also measured the effects of Motorists' seat belt use campaign. Based on more than 30,000 observations of belt use in three Michigan cities, the department's study concluded that there was "no response" to the *advertising blitz.* In fact, in one of the cities belt use declined by one percent.

An earlier Motorists Information campaign in Grand Rapids, Michigan, was claimed to have resulted in an increase in belt use from 29 to 41 percent. However, it turned out that the claim was based on telephone interviewing of motorists – a technique well known to researchers as unreliable in assessing belt use – rather than on actually observed belt use. Subsequently, the Insurance Institute for Highway Safety, on the basis of extensive observations in Grand Rapids, reported that belt use levels at the conclusion of this $225,000 campaign were so low that *only 13 percent of drivers were wearing any belts at all.*

- In March 1980, the National Academy of Sciences presented to DOT a report of the Academy's investigation of methods to encourage the use of seat belts by passengers and drivers of motor vehicles. The Academy noted that "past attempts to induce people to use their safety belts have not been particularly successful. . . . Some of the measures that have failed – the interlock and the media campaigns, for example – might have been successful elements of a larger effort." *The Academy's principal conclusion about all efforts to increase seat belt use was that "no single program is likely to work."*

In part because of these worldwide failures to increase voluntary seat belt use through promotional campaigns, many countries have enacted mandatory belt use laws. In Australia, for example, a government effort was launched in the late 1960's to encourage seat belt use. High usage rates were never achieved in that country, even with relatively intense promotion of belts. Only after use laws were passed and enforced were substantial increases in use experienced.

In 1977, DOT reviewed these efforts to increase seat belt usage through education and promotion, and concluded that such campaigns "in the United States or any foreign nation have not been successful in increasing voluntary seat belt usage to an effectively high level."

Ms. CLAYBROOK. I would like to make one other point with regard to Government investment that I think is pertinent. With this tax credit proposal, contrary to the usual subsidies, it benefits any American buying a new car, not just a particular company, for example, as was pointed out in the Washington Post yesterday, who is unwilling to undertake a risky energy production investment.

Another possibility for this bill, to control the amount of the Government investment, would be to set a time limit for its initial application, to see whether the effectiveness is there, and whether after a certain period of time, say, 3 to 5 years, there is a sufficient consumer demand documented in the marketplace for continued production of airbag systems without the subsidy.

In the auto industry not only is volume important to costs, but also tooling over some period of time. Once the tooling investments have been made, it is much, much cheaper to produce these systems.

I would like to conclude, Mr. Chairman, by reiterating my view that the issuance of motor vehicle safety standards under the statute to me is the preferred way for installation of improved safety in automobiles. However, given the intentions of the present administration with regard to these standards, I would applaud Senator Danforth and yourself for efforts in attempting to look for alternative systems for achieving significant increases in automotive safety. It is a worthy goal and one which is needed.

Lest we all forget, auto crashes are the largest killer of Americans under age 34. They are the major cause of paraplegia in the United States, and they are a significant cause of epilepsy, and they cost the American public in excess of $50 billion every year.

I believe that it is shameful that the auto industry has to be pushed, kicking, and screaming into the 20th century in facing up to this reality. I hope a sufficient number of your colleagues get to see the film "Faces in Crashes," and to hear the arguments for encouraging production of this technological vaccine called the airbag.

Thank you.

Senator PACKWOOD. Senator Danforth.

Senator DANFORTH. I have just walked in, and did not hear the testimony.

Senator PACKWOOD. I have no more questions, Ms. Claybrook. Thank you very much.

Senator DANFORTH. I would not like to see the witness leave without at least having some comments, an embellishment of whatever she said.

Ms. CLAYBROOK. Let me just restate the couple of comments that I had on your bill, which I think are most important.

The first is the consumer penalty. I would prefer to see it be a manufacturer penalty. Second, I would like to urge you to consider having the credit applied to the consumer, rather than to the manufacturer. My reason for this is that, it would play the same role either way in financing the production of airbags, but if it is a consumer subsidy, the manufacturer in order to encourage its use, to compensate on the other side for the penalty it would have to pay, would have to advise and promote the airbags in a much more substantial manner. Whereas, under your bill, the manufacturer does not have to pay the penalty, and while they do reap the subsidy, there is less marketing demand on them.

Second, I think that the amount of the subsidy ought to be volume related because the price does go down so substantially. In other words, if the manufacturer sells 2 million units, it ought to be a lot less than $300. If they sell fewer than that, let us say, 500,000 units, then maybe $300 is an appropriate figure. That is certainly something that could be adjusted because these are all documented figures.

I also suggested that one possibility would be to consider having the penalty apply only to small cars, since they are so much more vulnerable than large cars. That is one way of responding to criticisms that you should not have a penalty at all. I think that a penalty is perhaps essential in your bill, and one way to make it less obstreperous is to have it only apply to small cars.

Senator **Danforth**. Let me ask you this. Is there any question in your mind that airbags are life-saving and face-saving? Is there any doubt in your mind about that?

I suppose, some people would argue, well, maybe it is not a proved technology, maybe we need to study it more. They could malfunction. They could cause all sorts of problems. You could be driving along, and something awful would happen.

You spent years studying the issue and thinking about it. Do you have any doubt in your mind that this is an efficacious thing to do?

Ms. **Claybrook**. No, I think the only argument is whether airbag, when in all vehicles, would save 6,000 or 12,000 lives. I don't know any other public health remedy which can match its payoff.

When you compare its price—if you think about what is the cost of health insurance in 1 year, $500 perhaps or something more, the cost of a vinyl roof on a car, which is bought with great frequency today, is $120 to $150, or the price of an AM/FM radio—the price of an airbag is so unbelievably modest when produced in volume, and the payoff has been documented in so many different ways.

There have been, I think, many, many technological arguments raised, as was mentioned by an earlier witness. Everyone of these has been studied, researched, tested, considered, and some minor adjustments have been made.

We are now at the third generation of airbag development. You can have an airbag that fits a small car or a large car. You can have a wide opening in your dashboard, or you can have a narrow opening in your dashboard. You can have it down below, or you can have it high up above. You can have a bag that is very large, or rather small. You can have a bag that has seams down it. You can have a bag that comes out fast or slowly. You can have it come out at two different speeds.

There is enormous flexibility with this system that you don't have, for example, with the seat, so that it fits and accommodates little, tiny children and great big, huge males. It has an adjustability that is magnificent.

Senator **Danforth**. How about the argument that, well, really, the primary safety system is the seatbelt, if only people would use the seatbelt. Why make somebody who uses the seatbelt pay for a product which he really doesn't need because he has got the seatbelt. We are making him pay more for a car, if that is the case. In my bill, the idea was to try to get around having the customer pay for it.

Let's suppose you are talking about a mandated standard. How would you address that argument?

Ms. Claybrook. I think it is a difference in technology development. The airbag is a space-age technology, and it is like the difference between mechanics and electronics. It is an advanced restraint system, and it does a much better job.

The seatbelt is magnificent. I would urge every person always to wear their seatbelt, because that is all they have today in their cars, but a seatbelt doesn't protect your head, and it doesn't protect your face. It can cause injuries to your abdomen and your chest. At higher speeds, it doesn't do the job. For very large males, it doesn't do the job. The larger you are, the more force you put against the seatbelt.

The seatbelt also has the disadvantage with the retractor system that dirt and grime can get in there and sometimes the retractor doesn't operate properly in an emergency. The seatbelt is probably narrower than it should be for an optimum seatbelt.

Advanced seatbelt systems which are not sold in the United States, but have been used on some experimental vehicles, have a ratcheting system so that they release a little bit as you go into that belt. We don't see in cars today even the most advanced seatbelts that could be manufactured.

I think the answer to you is that everyone should use the best of what they have today, but that doesn't mean that we should stop there, particularly when you compare it to 52,000 deaths a year.

Senator Danforth. So, your belief is that even people who use seatbelts would benefit from airbags?

Ms. Claybrook. There is no question about it, because it spreads the crash forces across your whole body, and it is adjustable. The air system makes it extremely flexible and adjustable to whatever size your body is, and to the force of the crash itself. There is no other system that has ever been developed that has that magnificent design.

Senator Danforth. When you were the Administrator of NHTSA, in addition to the airbag question, did you work on a number of other possible safety improvement in automobiles?

Ms. Claybrook. Yes; one of the things that had been started before I arrived at the Department of Transportation was the development of an experimental safety vehicle that would use advanced technologies to see how safe you could make a car.

One that was developed that I was particularly pleased with was by Mini-Cars in Gleda, Calif. This car was designed to crash safely at 50 miles an hour in a front or side crash. The concepts of the car were to put a foam filling in the steel structure to make it light weight and fuel efficient, but also very energy absorbing; to put a slightly higher sill on the side of the car, so when you had a side impact, you did not have intrusion, and so on. That was very important—side impact protection.

Senator Danforth. Without getting into the details of any of the ideas that you worked on, did you communicate with automobile manufacturers about various options or various alternatives for improving safety?

Ms. **Claybrook**. Yes, I did all during my 4-year term. I visited the executives of the automobile manufacturers in Detroit, and Europe and Japan. Additionally, we did crash testing of cars in order to encourage them, from a public perspective, to think about improving safety.

Beyond that, in November 1980, I sent a 10-page letter, which perhaps would be worth submitting for the record, Senator, in which I listed five different areas of the car which needed substantial safety improvement for which the technology is currently available, primarily side impact and pedestrian protection, but others as well. I urged them to voluntarily undertake to improve their cars in these respects.

Senator **Danforth**. Did they?

Ms. **Claybrook**. No; I got very sweet thank you notes from all of the manufacturers, and of course nothing more has been done. That is not to say that the manufacturers have not, from time to time, undertaken some safety advances, but I think that most of them have occurred in response to public pressure.

Senator **Danforth**. If you were in the automobile business and you wanted to sell a product to consumers, would you stress safety? Is that something that consumers would want to buy, do you think?

Ms. **Claybrook**. First of all, I sincerely believe that. Second, particularly with small cars, I think that it would be highly advantageous. American consumers have been used to quite large cars, and many of them are fearful of buying the smaller cars, but feel constrained to for fuel efficiency reasons. I cannot imagine a more successful sales program than offering a safe small car to the American public.

Indeed, I recommended this 2 years ago to the U.S. manufacturers by way of changing the debate with the foreign competitors, because the imports did not have as substantial designs for small car safety as the U.S. manufacturers did. The U.S. manufacturers, largely in response to the Government pressure of the last decade, had improved the safety designs of their large and small cars, the structure and the energy absorbing capacity.

Senator **Danforth**. Thank you very much, Ms. Claybrook.

Ms. **Claybrook**. Thank you.

Senator **Danforth**. The next witness is Roger Maugh, director of automotive safety office, Ford Motor Co.

Mr. Maugh, thank you for being with us this morning.

STATEMENT OF ROGER E. MAUGH, DIRECTOR, AUTOMOTIVE SAFETY OFFICE, FORD MOTOR CO.

Mr. **Maugh**. Thank you, Senator, and good morning.

For the record, I am Roger Maugh, director of the automotive safety office for Ford Motor Co.

Before I get into my prepared testimony, I feel constrained to speak to some of the dialog in the last conversation with respect to some safety advertising back in the mid-1950's, and some of the decisions that were made then.

First of all, at that point in time, we started putting better dashes, better visors, and seatbelts in our cars as optional equipment, and in 1956 merchandized those options as a major part of our marketing programs.

The 1956 Ford sales results were not as good as had been desired, and in 1957, when we introduced an all new car, the marketing promotion of that new car was changed. The safety features which were offered continued the next year, and they continued ever since and now are standard equipment in our cars.

The marketing strategy was changed to promote the new car, and in 1957 we outsold Chevrolet. That is the basic reason that people look back and say that Ford decided that it was not going to market safety. As a practical matter, it was a very natural marketing decision to move from an option related marketing program with a carryover car, to merchandizing the attributes of the all new car the next year.

All of us who have a stake in highway safety are continually looking for ways to reduce highway injuries and fatalities, and, of course, the most immediate and beneficial way of accomplishing this goal is to convince people to wear today's belt systems which, when used, are as effective overall as any technology yet invented.

Perhaps the most important safety effort of this decade will be the National Highway Traffic Safety Administration's program enlisting auto manufacturers, insurance companies, civic groups, health professionals, educators, and as many others as possible in a major campaign aimed at increasing seatbelt usage.

Ford is 100 percent committed to this effort. We have developed programs aimed at mobilizing our employees, our suppliers and our dealers in this campaign. We are giving NHTSA 10,000 copies of a seatbelt film for use in secondary schools.

We hope to influence consumers through information in dealerships, selected ads, brochures, and other media as well as through personal contact by dealer sales personnel who will be urged to promote the benefits of safety belt usage.

Virtually all vehicles on the road today are already equipped with seatbelts. This means the safety benef[illegible] increasing belt usage can be realized much more quickly than the benefits of any new technology which would have to be phased in over time. We hope that the Congress will also join in giving maximum exposure and support to this important national program.

At the same time, all of us must continue to work on the other major facets of highway safety, toward better drivers, better highways, and better cars. We applaud the creation of a Presidential commission on alcohol-related driving problems.

On Ford's part, even we think our cars and trucks are as safe as any in the world, we will continue to pursue advanced safety design concepts such as more efficient front and side energy absorption, new steering column and wheel designs, and still better seatbelt, lighting and braking systems. The results of these efforts will show up in our 1983 and future models as these concepts work their way into producton.

With regard to continuing work on passive restraint systems, NHTSA has approached Ford, and we assume other manufacturers, with a request that we participate in the development of a cooperative Government/industry airbag demonstration program.

The agreements negotiated by former Secretary of Transportation Coleman in 1977, which were later terminated by mandatory passive restraint rulemaking, would have, in our opinion, provided the kind of information we still need today.

Presumably, NHTSA's proposed program would involve Government, members of the automotive industry, component suppliers, and the insurance industry.

A coordinated effort could minimize development time, limit financial and liability exposure for all participants, and generally aim at a cost-effective program to better answer some key open questions that need resolution before any wide scale application of this technology is attempted. These include the need for:

An evaluation of airbag performance and effectiveness based on at least 500,000 vehicle years of experience;

A determination of the cost to consumers at mass production volumes, and consumers' willingness to accept this system, especially at those cost levels;

A determination of the cost of replacement after an accident and whether insurers and consumers will actually have the airbag system replaced;

Finally, identification of means of reducing unrealistic consumer expectations as to the airbag's injury reduction potential.

With these answers to these questions, it will be much easier to make an accurate assessment as to whether or not the airbag can become a reliable, high-volume safety system.

Ford has advised NHTSA that we endorse the concept of a cooperative Government/industry demonstration program and will work to make it a reality. In order to develop a practical program, however, we believe ways must be found to simplify the effort.

We believe the cost, complexity and lead time of a cooperative program can be materially reduced by modifying the regulations that presently govern passive restraints, and have indicated to NHTSA that we are ready to discuss the issues involved.

In conclusion, Ford continues to believe that the maximum safety benefits will accrue from encouraging usage of today's proven belt systems and strongly support NHTSA's program to increase seatbelt usage.

We have advised NHTSA that we will participate in discussions aimed at constructing a framework for a cooperative airbag test program.

In these circumstances, we believe that the bill under discussion today, S. 1887, or any legislation, is neither required nor appropriate at this time.

This concludes my prepared testimony. I will be glad to answer any questions

[Statement of Mr. Maugh follows:]

STATEMENT OF ROGER E. MAUGH
DIRECTOR, AUTOMOTIVE SAFETY OFFICE
FORD MOTOR COMPANY
BEFORE THE SUBCOMMITTEE ON TAXATION AND DEBT MANAGEMENT
SENATE FINANCE COMMITTEE
January 28, 1982

I am Roger Maugh, Director of Automotive Safety for Ford Motor Company. All of us who have a stake in highway and traffic safety are continually looking for ways to reduce highway injuries and fatalities. The most immediate and beneficial way of accomplishing this goal, of course, is to convince people to wear today's belt systems which, when used, are as effective overall as any technology yet invented. Perhaps the most important safety effort of this decade will be the National Highway Traffic Safety Administration (NHTSA) program enlisting auto manufacturers, insurance companies, civic groups, health professionals, educators, and as many others as possible in a major campaign aimed at increasing seat belt usage.

Ford is 100% committed to this effort. We've developed programs aimed at mobilizing our employees, our suppliers and our dealers in this campaign and we are giving NHTSA 10,000 copies of a seat belt film for use in secondary schools. We hope to influence consumers through information in dealerships, selected ads, brochures and other media as well as through personal contact by dealer sales personnel who will be urged to promote the benefits of safety belt usage.

Virtually all vehicles on the road today are already equipped with seat belts. This means the safety benefits of increasing belt usage can be realized much more quickly than the benefits of any new technology, which would have to be phased in over time. We hope that the Congress will also join in giving maximum exposure and support to this important national program.

At the same time, all of us must continue to work on the other major facets of highway safety — toward better drivers, better highways and better cars. We applaud the creation of a Presidential commission on alcohol-related driving problems. On Ford's part, even though we think our cars and trucks are as safe as any in the world, we will continue to pursue advanced safety design concepts such as more efficient front and side energy absorption, new steering column and wheel designs, and still better seat belt, lighting and braking systems. The results of these efforts will show up in our 1983 and future models as these concepts work their way into production.

With regard to continuing work on passive restraint systems, NHTSA has approached Ford — and we assume other manufacturers — with a request that we participate in the development of a cooperative government/industry air bag demonstration program. The agreements negotiated by former Secretary of Transportation Coleman in 1977 — which were later terminated by mandatory passive restraint rulemaking — would have, in our opinion, provided the kind of information we still need today. Presumably, NHTSA's proposed program would involve government, members of the automotive industry, component suppliers and the insurance industry. A coordinated effort could minimize development time, limit financial and liability exposure for all participants and generally aim at a cost-effective program to better answer some key open questions that need resolution before any wide scale application of this technology is attempted. These include the need for:

- An evaluation of air bag performance and effectiveness based on at least a half million vehicle years of experience.
- A determination of the cost to consumers at mass production volumes — and consumers' willingness to accept this system, especially at those cost levels.
- A determination of the cost of replacement after an accident and whether insurers and consumers will actually have the air bag system replaced.
- Identification of means of reducing unrealistic consumer expectations as to the air bag's injury reduction potential.

With answers to these questions it will be much easier to make an accurate assessment as to whether or not the air bag can become a reliable, high volume safety system.

Ford has advised NHTSA that we endorse the concept of a cooperative government/industry demonstration program and will work to make it a reality. In order to develop a practical program, however, we believe ways must be found to simplify the effort. We believe the cost, complexity and lead time of a cooperative program can be materially reduced by modifying the regulations that presently govern passive restraints, and have indicated to NHTSA that we are ready to discuss the issues involved.

In conclusion, Ford continues to believe that maximum safety benefits will accrue from encouraging usage of today's proven belt systems and strongly supports NHTSA's program to increase belt usage. We have advised NHTSA that we will participate in discussions aimed at constructing a framework for a cooperative air bag test program. In these circumstances, we believe that the bill under discussion today, S.1887 — or any legislation — is neither required nor appropriate at this time.

Senator Danforth. Thank you, Mr. Maugh.

Before Senator Packwood left, he asked me to ask you some questions about past policies or positions of Ford. Did Ford support or oppose mandatory seatbelts?

Mr. Maugh. We have basically supported the concept of encouraging seatbelt usage.

Senator Danforth. How about the mandatory standard, did you support that?

Mr. Maugh. We have supported adoption of mandatory seatbelt usage regulations. We have also worked in a number of the States to encourage that type of legislation, and we still support it.

Senator Danforth. Did you support the Federal standard for seatbelts?

Mr. Maugh. If you are referring to the passive restraint standard that was recently rescinded—

Senator Danforth. No, just the one that when you buy a car now, you buy one with the three-point seatbelts.

Mr. Maugh. Certainly. Most of the safety regulations provide for design or performance requirements that we think are appropriate, and we support them.

Senator Danforth. How about mandatory mileage standards? Did Ford support that?

Mr. Maugh. I think we felt all the way along that the marketplace, particularly in the economy that we have today and with the energy situation, provides the needed level of incentive for improved mileage, and we really don't need to specify year-by-year CAFE standards.

Senator Danforth. How about fuel emission standards, has Ford supported them?

Mr. Maugh. The emission standards?

Senator Danforth. Yes.

Mr. Maugh. We support the country's effort to maintain clean air, and certainly emission standards are an appropriate way to approach that need. We have not supported some of the specific individual standards, but by and large we have supported the concept of the overall goals of the program.

Senator Danforth. My impression is that when all of these items were before the Congress, or before regulatory agencies, when they were still live issues, the standard position of the automobile manufacturers was to oppose them. Would that be a fair comment?

Mr. Maugh. No, while we have opposed many specifics of a proposal where we thought that it did not really get to the issue as efficiently as other means would do it, we have not taken a standard position of opposition to the major goals in these areas.

Senator Danforth. I have been up to my ears with the problems of the U.S. automobile industry with respect to the import situation in particular. I have always attempted to make it clear that Government can't do anything artificially for very long. Basically, the future of the U.S. automobile industry depends on whether it can produce a competitive product at a competitive price, something that consumers want to buy.

I am absolutely convinced that it can. I am convinced that the American worker can produce a product which is as good as any other product anywhere in the world. The automobile industry in America can regain its position of preeminence if it really puts its mind to it, if it really tries. If it doesn't try, then we can't spend, I don't think, forever bailing it out, propping it up.

I saw that article in the paper. I haven't seen the report on the question of the relative safety of American cars versus foreign cars. If I were in the auto industry, I would promote that, advocate it, be in the forefront. I would be pushing for safety.

I would be maximizing the safety issue. Not just issuing verbal comments and then, but really working against any standard that anybody proposes. I would be really pushing it, and advocating it, and out front. I would take the position that the American cars are safer than any others. I would take the position that the Japanese cars are deathtraps, and I would push that.

I saw that GM had a newspaper ad not quite to that effect, but on that same theme.

Here is some legislation that would relieve the automobile industry from the cost of it. It would say, look, we understand your money problems, and we are going to help you with a tax credit. As a matter of fact, I have never heard of a tax credit that is available for anything that is produced in some other country, and it would be available only for automobiles manufactured in the United States.

If I were in the American automobile industry, I would say, this is a chance for our industry to be pro safety, and pro quality, and to be so in a way that is not economically injurious to us. This really is our issue, and this is how we are going to gain the ascendancy again.

But, typically, the approach of the automobile industry is, "We don't want anything new. That is threatening. We can't do that. We wash our hands of that problem. We will have an advertising campaign or further talks with NHTSA."

What is the future of this industry if it is just going to be downbeat and negative, and not address the concerns of the public?

Maybe I am overstating it, and I am sure I am from your standpoint, but I just wonder if you have any comments. I could not be more discouraged.

Mr. MAUGH. First of all, I agree with your first premise, and that is, we have to be competitive. We will be competitive. We are convinced that we have taken the kinds of actions, so that when the economy comes back to support a reasonable market level, we will be able to become a healthy industry. We are doing the kinds of things that will make us competitive in all aspects of the business.

As far as safety goes, we would not be here today if we were not interested in highway safety. It is pretty obvious that as an automobile manufacturer, our long term best interests lie in reducing the toll of injuries and fatalities.

As far as crash worthiness ratings, and using some type of measure of the relative safety of one car versus another as a means of competing, we would welcome that type of competition. We think safety is important, we think it will become more important. We think it will become an area of competition in marketing and in design.

Having said that, we don't know how to compare the overall safety of one car versus another. We don't have an objective means of measuring relative safety, so you just can't come out and start making statements that you don't have the technical basis to support.

Senator **Danforth**. The insurance industry has done it. NHTSA has done, hasn't it? I think the Car book did it, as I recollect.

Mr. **Maugh**. Senator, the Car book used barrier crashes at 35 miles an hour, and a means of measuring the response of a dummy in that crash. We are not satisfied that that type of a measurement reflects the safety that the consumer would experience in the infinite variety of accidents that he is exposed to. We think that crash test data could be misleading if used for this purpose. The insurance data that has been used has other problems.

Once again, we don't think that we have a means of comparing car A versus car B in terms of their relative real-world safety, so that a consumer can reliably make the judgment as to what he is going to get for what he pays.

Senator **Danforth**. The figures that some independent group provides show that you are winning, you are ahead. I would not appeal the verdict. [Laughter.]

Mr. **Maugh**. Unfortunately, you know, you can use that type of favorable data, but the next time it comes around, it may say that you are behind, and then you have got to deal with it. If the data are not technically sound, then nobody wins.

Senator **Danforth**. Thank you very much, Mr. Maugh.

Mr. **Maugh**. Thank you.

Senator **Danforth**. That concludes the hearing. We will have a hearing in a few weeks. Mr. Peck of the National Highway Traffic Safety Administration did not want to testify today, but he is planning to come at some future time, I believe in a few weeks. So we are going to have a second day of hearing to hear from the administration.

The subcommittee stands adjourned.

[Whereupon, at 10.45 a.m., the subcommittee adjourned, to reconvene at the call of the Chair.]

TAX CREDIT FOR INSTALLATION OF AIRBAGS IN AUTOMOBILES

TUESDAY, MARCH 2, 1982

U.S. SENATE,
SUBCOMMITTEE ON TAXATION AND DEBT MANAGEMENT,
COMMITTEE ON FINANCE,
Washington, D.C.

The committee met, pursuant to notice, at 2:06 p.m., in room 2221, Dirksen Senate Office Building, Hon. John C. Danforth (chairman) presiding.

Present: Senators Danforth and Byrd.

Senator DANFORTH. This is the second day of hearings on the airbag bill, and we have two witnesses. The first witness is Mr. Gregory Ballentine, Deputy Assistant Secretary for Tax Analysis, Department of the Treasury.

Mr. Ballentine.

STATEMENT OF GREGORY BALLENTINE, DEPUTY ASSISTANT SECRETARY (TAX ANALYSIS), DEPARTMENT OF THE TREASURY

Mr. BALLENTINE. Mr. Chairman and members of the subcommittee, I am pleased to have the opportunity to appear before you today to discuss S. 1887. The Treasury Department is opposed to the enactment of S. 1887.

Airbags are a useful device and there is considerable evidence that they significantly reduce the probability of serious injury in frontal collisions. However, the principal beneficiaries of this increased safety would be the purchasers of new automobiles and their passengers. We believe it is appropriate that these potential buyers bear the real resource cost of acquiring the additional safety provided by airbags. S. 1887 hides much of this cost from potential buyers, imposing the cost on all taxpayers, whether new car buyers or not.

Over the next several years, it is unlikely that significant numbers of airbags would be installed, even if S. 1887 were enacted. The effects of S. 1887, in the short run, therefore, would be equivalent to imposing an excise tax on new automobiles. Such a tax would cause additional damage to the already depressed domestic automobile industry, and would be counter to the administration's policy of lowering the tax burden on the American public. In this regard, our estimates indicate that the net effect of S. 1887 would be to raise $2.2 billion in revenue in fiscal 1984.

In the long run, S. 1887 will encourage more installation of airbags by subsidizing a portion of their cost. It will do so, however, only by imposing a short-term burden on the already beleaguered automobile industry and by forcing taxpayers in general to pay for safety devices which primarily benefit owners of new cars.

Thank you.

Senator **Danforth**. Thank you, Mr. Ballentine. You do believe that airbags would perform a useful safety purpose?

Mr. **Ballentine**. Yes, I do.

Senator **Danforth**. Lives would be saved?

Mr. **Ballentine**. Yes.

Senator **Danforth**. Do you have any alternative suggestion? We are just reaching for alternatives. NHTSA tells us they don't want a mandatory requirement so we are looking at some nonmandatory tax method. Do you have any positive suggestions?

Mr. **Ballentine**. I'm afraid I don't. I wish I could say I did, but I do not.

Senator **Danforth**. Kind of like hot, hot, hot; cold, cold, cold. The administration doesn't have any suggestions as to how we can do this?

Mr. **Ballentine**. Senator, the Treasury Department does not.

Senator **Danforth**. Thank you, very much.

Mr. **Ballentine**. Thank you.

[The prepared statement follows:]

For Release Upon Delivery
Expected at 2:00 p.m. EST

STATEMENT OF
J. GREGORY BALLENTINE
DEPUTY ASSISTANT SECRETARY (TAX ANALYSIS)
DEPARTMENT OF THE TREASURY
BEFORE THE SENATE FINANCE COMMITTEE
SUBCOMMITTEE ON TAXATION AND DEBT MANAGEMENT
March 2, 1982

Mr. Chairman and Members of the Subcommittee:

I am pleased to have the opportunity to appear before you today to discuss S. 1887. This bill would allow a $300 refundable income tax credit to a domestic manufacturer for each automobile manufactured, beginning with model year 1984, on which an automatic safety airbag has been installed. In addition, a $300 excise tax would be imposed on the sale or first lease by a manufacturer, producer, or importer of an automobile on which an airbag has not been installed.

The Treasury Department is opposed to the enactment of S. 1887.

Airbags are a useful device and there is considerable evidence that they significantly reduce the probability of serious injury in frontal collisions. However, the principal beneficiaries of this increased safety would be the purchasers of new automobiles and their passengers. We believe it is appropriate that these potential buyers bear the real resource cost of acquiring the additional safety provided by airbags. S. 1887 hides much of this cost from potential buyers, imposing the cost on all taxpayers, whether new car buyers or not.

R-653

We recognize that there are valid arguments for some *government intervention* to promote the manufacture and use of some technologies that protect drivers and passengers from the effects of automobile accidents. We do not believe, however, it appropriate to use the tax system as proposed in this bill to subsidize the installation of airbags.

Over the next several years, it is unlikely that significant numbers of airbags would be installed, even if S. 1887 were enacted. The effects of S. 1887, in the short run, therefore, would be equivalent to imposing an excise tax on new automobiles. Such a tax would cause additional damage to the already depressed domestic automobile industry, and would be counter to the Administration's policy of lowering the tax burden on the American public. In this regard, our estimates indicate that the net effect of S. 1887 would be to raise $2.2 billion in revenue in Fiscal 1984.

In the long run, S. 1887 will encourage more installation of airbags by subsidizing a portion of their cost. It will do so, however, only by imposing a short term burden on the already beleaguered automobile industry and by forcing taxpayers in general to pay for safety devices which primarily benefit owners of new cars.

Revenue Estimate S. 1887

Airbag Excise Tax

($ billions)

	Fiscal Years			
	1984	1985	1986	1987
Excise on cars without airbags	2.8	2.9	3.1	3.2
Excise offset	0.6	0.8	0.8	0.8
Income credit for cars with bags	*	*	0.1	0.1
Total receipts effect	2.2	2.1	2.2	2.2

Office of the Secretary of the Treasury
Office of Tax Analysis

March 1, 1982

*Less than $50 million.

Senator **Danforth**. The next witness is Mr. Raymond Peck, Administrator of the National Highway Traffic Safety Administration.

STATEMENT OF RAYMOND A. PECK, JR., ADMINISTRATOR, NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, DEPARTMENT OF TRANSPORTATION

Mr. **Peck**. Mr. Chairman, we have submitted a more lengthy statement for the record. Because of the importance of some of the issues, I would like to read a fairly large part of it into the record, if you don't mind.

I want to thank you at the outset for inviting me to discuss S. 1887, a bill which is addressed to the economic demands which would be placed upon the auto industry and the Nation's consumers by the introduction of air cushion restraint technology into all new cars beginning in model year 1984.

The issue of how to make air cushion restraints a reality in the passenger cars of those who want them has troubled all of us—Government, industry, private parties, and interest groups—for many years now. It has been a matter of recurring congressional interest. For example, Mr. Chairman, you specifically raised the question during my confirmation hearings. At that time, I had reached no opinion.

I appreciate this opportunity now to exchange views on this matter.

In the past, both supporters and opponents of this technology have clouded discussions with excesses of rhetoric. Both the advantages and the drawbacks of airbags have been exaggerated to the point where widespread public misunderstanding of virtually every aspect of this technology now tends to prevail. This has greatly hampered the reasoned discussions in the past at all levels.

By contrast, the proposed legislation is a different approach to the issue. I am encouraged to see serious consideration being given to nonregulatory alternatives which would encourage the availability of air cushion restraints under the economic and social circumstances which exist today. I hope these efforts will mark a new beginning for the kind of constructive efforts needed to determine whether and how the technology may be appropriate for widespread use. Notwithstanding this optimism, for reasons which I will explain in more detail, the Department of Transportation opposes enactment of the bill.

In the months since my decision last October to rescind the mandatory passive restraint requirements of Federal Motor Vehicle Safety Standard 208, I have been discussing the technical and economic issues involved in air cushion restraint systems with auto manufacturers in this country and abroad, and with related suppliers and representatives of insurance industry interests.

My goal has been to identify the remaining questions which must be answered before optional availability can become a reality, and then to define the appropriate roles which all parties to such an effort might undertake in a formal agreement similar in nature to that undertaken by Secretary William Coleman in 1976.

In that year, Secretary Coleman called upon manufacturers to join voluntarily with the Federal Government in conducting a large-scale demonstration program to exhibit the effectiveness of airbags to the public. Under that program, airbag equipped automobiles would have been available to the public beginning September 1979. An essential condition of the agreements entered into between the Secretary and the manufacturers was that in the event the Department determined to impose mandatory passive restraint requirements, the manufacturers agreements would terminate by their own terms. This was considered a necessary condition by all parties because the competitiveness of the marketplace, it was felt, should control the manner in which compliance occurred.

In fact, those agreements did terminate on March 24, 1977, when then Secretary of Transportation Brock Adams proposed the promulgation of an amendment which added the passive restraint requirements to the 208 standard.

Another similar proposed demonstration program was offered by at least one major manufacturer as a result of negotiations conducted in 1980 with the then Secretary of Transportation in connection with legislation that was pending before the Congress.

Times have changed since each of these prior efforts to bring this technology into the marketplace. Our efforts today are being directed to assessing the nature and the degree of such changes, and the appropriate responses of all parties if another such effort is to succeed.

There has been significant progress in our discussions. Auto manufacturers have generally declared themselves committed to continue the development programs or to retain existing levels of readiness for production. The Ford Motor Co., in a statement before this committee last month, announced publicly its willingness to participate in such a program. Other companies have given us reason to believe they would join in such a voluntary effort.

A number of issues must be resolved, however. First, we still must face and overcome the problem of public acceptability. Public resistance to mandated technology is a fact of life. Such resistance will be predictably even stronger where an expensive technology such as this is involved.

It is an equally important fact of life that the capital available to this industry today is substantially less than it was even 2 years ago. And strong buyer resistance to today's higher new car prices is depressing demand across the board.

Finally, I think it must be recognized that all of the technological issues associated with airbags do not appear to be solved. In particular, it would appear that there are serious questions remaining especially with regard to providing protection for occupants of smaller cars.

This latter problem is directly reflected in the question of product liability, and the degree and economic circumstances under which new production programs would be covered by manufacturers' insurance carriers.

I might note that the earliest date I could meet with insurance carriers to address this issue happens by coincidence, to be tomorrow. That date was set before the date of this hearing. I would have liked to have been able to report on the outcome of that meeting.

We are, at the same time, reviewing other issues within the Department and within NHTSA. We are looking at whether there would be, in fact, meaningful insurance premium discounts available to consumers who purchase air-cushion-equipped cars. We are concerned about the economies of scale which would normally apply to produce acceptable market prices as production volumes increase. It will be difficult to achieve if the several suppliers of components are not able to achieve sufficient compatibility among the necessary systems or components. And in this regard, we are discussing the issues involving antitrust considerations with the Department of Justice and our own counsel.

We are actively investigating the possibility that the Federal Government, both civilian and military, and other major vehicle customers in the private sector might be willing to make, again, commitments to purchase air-cushion-equipped cars and thereby contribute some level of certainty to the initial market.

We are exploring the possibility and consequences of equipping only the driver side of the car with an air cushion. This alternative would produce 75 percent of the benefits realizable by a full front seat system, yet offer major reductions in the overall cost of the system. It could also virtually eliminate most of the problems associated with out of position front seat passengers. If such an alternative proves feasible, we would be able to explore the alternative of retrofitting existing cars with driver-side air cushions. It seems that the technology for retrofit is now available for most late model cars. We are continuing to look at this with suppliers and with fleet owners.

In either such event, our existing regulations imposing performance requirements applicable to all front seating positions would have to be amended, and I am prepared to address that question.

I have reviewed the state of the art of air cushion technology in fairly significant detail. It shows great promise. I would like to see these restraints available to any American consumer who wants to purchase one. That is why I was encouraged to see that your legislation has changed the focus of this debate from whether air cushion restraints should be mandated to the question of how best to encourage their development.

Turning to the proposed legislation itself, I am convinced that your bill is not the best approach to reach our common goal. First, the bill raises some serious questions as to national tax policy and international trade consequences. I understand that you will be separately presented with the administration's view on the international trade aspects in writing at a subsequent time. And, of course, the Treasury Department preceded me here.

With respect to our own areas of expertise, the bill may be addressed to the wrong target—the sales price of the automobile. I don't mean by that to imply that the sales price is not a relevant question. But as I have reviewed the issue, particularly with manufacturers, it would appear that a threshold question may need to be addressed first; that is, what additional development costs may remain before a system can be marketed which meets legitimate technological concerns? Once those costs have been identified, the question of whether and what economic incentives may be appropriate to insure the expenditures remaining dollars necessary to the commercial production of air cushion restraints will arise. But until then, discussing specific dollars-and-cents questions may be premature.

The bill proposes to adopt a definition of qualified automatic safety airbag, which we assume to be a drafting error. In my prepared statement I address in detail our concerns with the definition.

Finally, I am concerned that the bill might not only not result in airbag production, but that it might impede our current efforts toward that goal. With respect to the level of the tax and credit set forth in the proposed legislation, we understand that the value of $300 set forth in the bill is intended to represent actual production costs of airbags. Based on our current understanding of the technologies involved, we doubt that such a low production cost could realistically be achieved unless the technology were to be installed in the entire fleet of new vehicle production. This is unlikely.

Domestic manufacturers have not been planning to install airbags in their car lines in this kind of a time schedule. Only an insignificant number of cars could be equipped with airbags in model year 1984. Accordingly, the domestic manufacturers could not immediately benefit from the tax credit provision, yet they would face a $300 tax per car in 1984, which they would have to absorb or pass along as price increases.

For many people, such a price increase could delay still further a decision to purchase a new car. At the same time, purchasers of cars without airbags who intend conscientiously to use the safety belts which are standard equipment, would, in fact, be subsidizing the purchase of airbag-equipped cars.

To the degree that the actual planned production levels, especially in the early years, will fall below those production levels implicitly assumed in setting this level of tax credit, the cost of airbags will increase dramatically, and the actual economic risk of production versus acceptance of the tax without production becomes greater for any given manufacturer. When remaining capital costs for tooling car lines in subsequent model years are taken into account, electing to produce airbags under this legislation would represent an even more difficult choice for an industry that is already depressed and experiencing serious buyer resistance to escalating new car prices and financing costs.

Marketing experience to date does not tend to support the decision to take such economic risks. The only manufacturer who attempted to sell cars equipped with airbags in this country failed. In 1974 through 1976, GM invested upwards of $80 million and developed a system for use in selected lines of their cars. While cars equipped with such systems have thereafter shown great promise for reducing fatalities and the more serious injuries for owners, the fact remains that over a 3-year period only 10,000 such cars were sold. We will be reviewing in detail GM's specific marketing experience. But for the moment, the important fact is that although airbags may save lives, their track record in the market is not correspondingly high.

This market pessimism is reflected in changes in the manufacturers' production plans during the period when the Government did attempt to require passive restraint protection through direct regulation. Over a 4-year period of the existence of the passive restraint requirements of standard 208, estimates of annual airbag production to satisfy the requirements of that standard dropped successively from more than 5 million to fewer than 50,000.

S. 1887 would not eliminate any of this important uncertainty. It would leave the market in the same condition it is in today because it does not address the competitive fears which always accompany the introduction of any new technology, as each manufacturer watches to see who will offer it first.

Particularly in the cash-poor automotive industry, a manufacturer of today will be understandably concerned about offering more expensive products than his competitors. Faced with such uncertainty, we question whether manufacturers would not instead abandon any efforts to produce airbags under the bill or otherwise, accept the tax and publicly identify it as a federally imposed increase in cost. It would certainly be difficult under present circumstances to deny that such a choice would be the most economically prudent.

By contrast, the negotiations we are now engaged in to develop a successor to the Coleman agreement offer a real opportunity to produce airbags.

One reason why we believe such an agreement would have produced this technology when other approaches failed was that the Coleman agreement addressed most directly the real issues that appear to inhibit full-scale production. It established explicit ground rules and addressed competitive fears. With GM's 1974-76 experience, it is not surprising that most manufacturers are unwilling otherwise to plan to market airbags. It was a rational economic decision not to want to lose sales to a competitor who would have been able to offer a more conventionally equipped car at a lower price.

In the face of the acrimony that has accompanied this issue over the last decade, few have ever been able to fully examine why airbags have not reached the market today. Some are sure that the industry has callously tried to save money at the cost of human lives. Others have argued that adequately safe technology is not even now available. In all candor, I believe the record contains circumstantial evidence to support elements of each such view. But I do not consider myself bound by the record in this sense. I have not found the adamant resistance to further development and introduction of this technology which some pessimists have predicted would exist as I spoke with manufacturers.

I believe that we can and must proceed with this discussion under the economic, technical, and social considerations that exist today. I believe an objective review of all of the known facts, as opposed to the unsupported or outdated assertions which have characterized the past public discussions, would support orderly progress toward making this technology available to those who would want it.

I happen to be one of those. NHTSA is continuing to explore the ways in which we can encourage making these systems available to the American consumer.

I am highly optimistic that a demonstration program, such as I have outlined earlier, will, in fact, take place and will allow a market for air cushion restraints to be created. When this occurs, any American consumer who wishes to have the added protection of this technology can do so, and we will have contributed significantly to the cause of highway safety.

We recognize that S. 1887 is an important first step to shifting the public debate toward how best to encourage the availability of air cushion restraint systems in the market. I might say I have been particularly gratified by the ease of access and the discussions that we have had with the committee staff and with your personal staff. I hope to work further with you and the staff to discuss more effective ways of reaching this common goal.

That concludes my statement. I, of course, would be pleased to answer any questions.

[The prepared statement follows:]

STATEMENT OF RAYMOND A. PECK, JR., ADMINISTRATOR, NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, DEPARTMENT OF TRANSPORTATION

Mr. Chairman and Members of the Subcommittee: Thank you for inviting me to discuss S. 1887, a bill which is addressed to the economic demands which would be placed upon the auto industry and the Nation's consumers by the introduction of air cushion restraint technology into all new cars beginning in model year 1984. The issue of how to make air cushion restraints a reality in the passenger cars of those who want them has troubled all of us—government, industry, private parties, and interest groups—for many years now. It has been a matter of recurring congressional interest. For example, Mr. Chairman, you specifically raised the question during my confirmation hearings. At that time, I had reached no opinion. I appreciate this opportunity to exchange views on this matter.

In the past, both supporters and opponents of this technology have clouded discussions with excesses of rhetoric. Both the advantages and the drawbacks of airbags have been exaggerated to the point where widespread public misunderstanding of virtually every aspect of this technology now prevails. This has greatly hampered reasoned discussions at all levels.

By contrast, the proposed legislation is a different approach to the issue. I am encouraged to see serious consideration being given to non-regulatory alternatives which would encourage the availability of air cushion restraints under the economic and social circumstances which exist today. I hope that these efforts will mark a new beginning for the kind of constructive efforts needed to determine whether and how the technology may be appropriate for widespread use. Notwithstanding this optimism, however, for reasons which I will explain in more detail, the Department opposes enactment of the bill.

In the months since my decision last October to rescind the mandatory passive restraint requirements of Federal Motor Vehicle Safety Standard 208, I have been discussing the technical and economic issues involved in air cushion restraint systems with auto manufacturers in this country and abroad, and with related suppliers and representatives of insurance industry interests.

My goal has been to identify the remaining questions which must be answered before optional availability becomes a reality, and then to define the appropriate roles which all parties to such an effort might undertake in a formal agreement similar in nature to that undertaken by Secretary William T. Coleman in 1976.

In December of that year, Secretary Coleman called upon automobile manufacturers to join the Federal government in conducting a large-scale demonstration program to exhibit the effectiveness of airbags to the public. Under this program, airbag-equipped automobiles would have been available to the public beginning September 1, 1979.

Although participation in the program was voluntary, three major manufacturers agreed to manufacture and market a combined total of approximately one-half million automobiles equipped with airbags, in various model sizes, beginning in model year 1980. The manufacturers agreed to sell these automobiles at a reasonable price, to market the vehicles on a nationwide basis, and to assist NHTSA in monitoring the results of the demonstration program.

This agreement was conditioned on several important events. First, the insurance industry was to undertake to provide product liability insurance coverage at a reasonable guaranteed cost for each car equipped with an airbag. Second, the contracts provided that they would automatically terminate on the date that the Department of Transportation issued a notice or regulation which would require the installation of automatic restraints on any new cars. This provision was accepted as necessary by all parties to allow manufacturers to operate under competitive marketing practices in the event that an automatic restraint mandate were to be applied to all manufacturers.

As we all know, these agreements did in fact terminate on March 24, 1977, when the then Secretary of Transportation Brock Adams proposed the promulgation of an amendment to add passive restraint requirements to Federal Motor Vehicle Safety Standard 208.

Thereafter, another similar proposed demonstration program was being negotiated in connection with the deliberations of the last Congress to modify the 208 standard.

Times have changed since each of these prior efforts to bring this technology into the marketplace, and our efforts have been directed to assessing the nature and degree of such changes, and the appropriate responses of all parties if another such effort is to succeed.

I am pleased to report some significant progress in our discussions. Auto manufacturers have generally declared themselves committed to continue development programs, or retain existing levels of readiness for production. The Ford Motor Company, in a statement before this Committee last month, announced publicly its willingness to participate in such a demonstration program. Other companies have given us reason to believe the will join in such a voluntary effort.

Before we will see the day when this technology is offered as an option, however, a number of issues must be resolved. First, we still must overcome the problem of public acceptability. Public resistance to mandated technology is a fact of life, and such resistance will be even stronger where expensive technology such as this is involved.

It is an equally important fact of life that the capital available to this industry today is substantially less than it was even two years ago, and strong buyer resistance to today's higher new car prices is depressing demand across the board.

Finally, I think it must be recognized that all technological issues associated with air bags do not appear to have been solved. In particular, it would appear that there are serious questions remaining with regard to providing protection for occupants of small cars.

This latter problem is directly reflected in the question of product liability, and the degree and economic circumstances under which new production programs would be covered by manufacturers' insurance carriers.

Several other issues are also under review. We are looking at whether there would in fact be meaningful insurance premium discounts available to consumers who purchase air cushion-equipped cars. We are concerned that the economies of scale which would normally apply to produce market-acceptable prices as production volumes increase will be difficult to achieve if the several suppliers of components are not able to achieve sufficient compatibility among the necessary systems or components. We are examining possible solutions to this problem, and the Justice Department is assisting us in considering the antitrust implications of some of the solutions.

We are investigating the possibility that the Federal government, both civilian and military, and other major vehicle customers in the private sector, might be willing to make commitments to purchase air cushion-equipped cars, thereby contributing some level of certainty to the initial market.

We are exploring the possibility and consequences of equipping only the driver's side of the car with an air cushion. This alternative would produce 75 percent of the benefits realizable by a full-front seat system, yet offer major reductions in the cost of the system. It would virtually eliminate most of the problems associated with out-of-position front seat passengers. If such an alternative proves feasible, we would also be able to explore the alternative of retrofitting some existing cars with driver-side air cushions. It seems that the technology for retrofit is now available for most late-model cars. We will be looking at this further. In either such event, of course, our existing regulations imposing performance requirements applicable to all front seating positions would have to be amended.

Mr. Chairman, I have reviewed the state-of-the-art of air cushion restraint technology in great detail. It shows great promise. I would like to see air cushion restraints available to any American consumer who wants to purchase one. That is why I was encouraged to see that your legislation has changed the focus of the debate from whether air cushion restraints should be mandated to a question of how best to encourage their development.

Turning to the proposed legislation itself, I am convinced that your bill is not the best approach to reaching our common goal. First, the bill raises some serious questions as to national tax policy and international trade consequences. I understand that you will be separately presented with the Administration's views on these matters, and we respectfully defer to the other executive branch experts on these aspects of the bill.

With respect to our own areas of expertise, I believe that the bill may be addressed to the wrong target—the sales price of the automobile. As I have reviewed the issue, it would appear that a threshold question may need to be addressed first. That is, what additional development costs may remain before a system can be marketed which meets our technological concerns. Once those costs have been identified, the question of whether and what economic incentives may be appropriate to ensure the expenditure of the remaining research and retooling dollars necessary to the commercial production of air cushion restraints will arise. Until then, discussing specific dollars and cents questions may be premature.

Additionally, the bill proposes to adopt a definition of "qualified automatic safety airbag" as an airbag "which meets the requirements of Section 126 of the National Traffic and Motor Vehicle Safety Act 1966." We assume this to be a drafting error since there is no section 126 under that act, nor does any other statutory provision set requirements for airbags. Currently, for those manufacturers who elect to offer passive restraints, NHTSA's Federal Motor Vehicle Safety Standard 208 requires protection of all front seat occupants, and dynamic testing to provide evidence of the level of protection offered by the device. As I mentioned earlier, our demonstration program will be looking at the possibility of offering driver-only air cushions, and we will be considering further revisions to our standards necessary to accomplish this. In either event, however, S. 1887, as drafted, would not allow this kind of flexibility.

Finally, I do not believe the bill will accomplish the goal it sets out to achieve. Enactment of this legislation could not only not result in airbag production, it could impede our current efforts toward that goal.

With respect to the level of tax/credit set in the proposed legislation, it is understood that the value of $300 for the tax/credit set forth in the bill is intended to represent actual production costs of airbags. Based on our current understanding of the technologies involved, it is doubtful that such a low production cost could realistically be achieved unless the technology were to be installed in the entire fleet of new vehicle production. This is unlikely.

Domestic manufacurers have not been planning to install airbags in their car lines. Therefore, only an insignificant number of cars could be equipped with airbags in model year 1984. Accordingly, the domestic manufacturers could not immediately benefit from the tax credit provision, yet they would face a $300 tax per car in 1984, which they would have to absorb or pass along as price increases. For many people, such a price increase would delay still further their decision to purchase a new car. At the same time, purchasers of cars without airbags who intend conscientously to use the safety belts which are standard equipment, would, in fact be subsidizing the purchase of airbag-equipped cars.

To the degree that actual planned production levels will fall below those implicitly assumed in setting this level of tax/credit, the cost of airbags will increase dramatically, and the actual economic risk of production versus acceptance of the tax becomes greater for any given manufacturer. When remaining capital costs for tooling their car lines for airbags in subsequent model years are taken into account, electing to produce airbags under this legislation would represent an even more difficult choice for an industry that is already depressed and experiencing serious buyer resistance to escalating new car prices and financing costs.

Marketing experience to date does not tend to support the taking of such economic risks. The only manufacturer who attempted to sell cars equipped with airbags in this country failed. In 1974–76, GM invested upwards of $80 million and developed a system for use in selected lines of their cars. While cars equipped with such systems have shown promise in reducing fatalities and the more serious injuries for owners of those cars, over a 3-year period, only 10,000 such cars were sold. We will be reviewing GM's specific marketing experience in detail, but for the moment the important point is that although airbags may save lives, their track record in the market is not correspondingly high.

This market pessimism is reflected in changes in manufacturers' production plans when the government did attempt to require passive restraint protection through regulation. Over a 4-year period, estimates of annual airbag production in order to satisfy FMVSS 208 requirements dropped from upwards of 5,000,000 to fewer than 50,000.

S. 1887 would not eliminate any of this important uncertainty. It would leave the market in the same condition it is today, because it does not address the competitive fears which always accompany introduction of any new technology, as each manufacturer watches to see who will offer it first. Particularly in the cash-poor automotive industry, a manufacturer of today will be understandably concerned about offering a more expensive product than his competitors.

Faced with such uncertainty, we question whether manufacturers would not instead abandon any efforts to produce airbags under the bill, or otherwise, accept the tax, and publicly identify it as a federally imposed increases in cost. It would certainly be difficult to deny that such a choice would be the most economically prudent.

By contrast, the negotiations we are now engaged in to develop a successor to the Coleman agreement offer a real opportunity to produce airbags.

For example, one reason why we believe such an agreement would have produced airbags when other approaches have failed was that the Coleman agreement addressed most directly the real issues that appear to inhibit full scale production. It established explicit ground rules, and addressed competitive fears. With GM's 1974-76 experience, it is not surprising that most auto manufacturers were unwilling to plan to market airbags. It was a rational economic decision not to want to lose sales to a competitor who would have been able to offer a more conventionally equipped car at a lower price.

In the face of the acrimony that has accompanied this issue over the last decade, few have ever been able to fully examine why airbags have not reached the market. Some are sure that the industry was callously trying to save money at the cost of human lives. Others have argued that adequately safe technology is not available.

In all candor, I believe the record contains circumstantial evidence to support elements of each such view. But I do not consider myself bound by the record in this sense. I have not found the adamant resistance to the further development and introduction of this technology which some pessimists have predicted would exist.

I believe that we can and must proceed with this discussion under the economic, technical and social considerations that exist today. I believe an objective review of all of the known facts, as opposed to the unsupported or outdated assertions which have characterized past public discussions, would support orderly progress toward making this technology available to those who would want it.

I am one of those. NHTSA is continuing to explore the ways in which we can encourage making these systems available to the American consumer. I am highly optimistic that the demonstration program I outlined earlier will take place, and allow a market for air cushion restraints to be created. When this occurs, any American consumer who wishes to have an air cushion-equipped car can do so, and we will have contributed significantly to the cause of highway safety.

We recognize this bill is an important first step in shifting the public debate toward how best to encourage the availability of air cushion restraint systems in the market. I hope to work further with you and your staff to discuss more effective ways of reaching this common goal.

This concludes my statement. I would be pleased to answer any questions you may have.

Senator **DANFORTH**. Mr. Peck, thank you very much. Airbags are not a new technology, are they? They have been tried now for what, perhaps a decade?

Mr. **PECK**. No, prototypes were available 10 years ago. Yes, sir.

Senator **DANFORTH**. It is my understanding that some 1,200 automobiles have been equipped with them. Is that right?

Mr. **PECK**. Twelve thousand.

Senator **DANFORTH**. Twelve thousand cars have been equipped with them. Right?

Mr. **PECK**. Yes. Perhaps a little more.

Senator **Danforth**. These cars have driven the distance of about a half billion miles.

Mr. **Peck**. That seems approximately correct, yes.

Senator **Danforth**. There have been more than 2,000 proving ground crash tests and laboratory simulations that have been conducted by the Department of Transportation. Is that correct?

Mr. **Peck**. I would have to check that number, but we certainly have conducted substantial testing.

Senator **Danforth**. Based on this history of cars equipped with them and numbers of miles traveled, numbers of tests conducted, do you feel that airbags do save lives, and do prevent serious injuries?

Mr. **Peck**. I think so, yes. I would have to qualify that not so much in the way you asked the question, Mr. Chairman, but in the underlying premises and the understandings generally associated with it. Airbags are not a miracle cure. They don't work in all cases. In lower speed collisions with lower injury ranges it may be they even produce injuries rather than prevent injuries. Generally, they do not protect except in a frontal crash, which does amount to more than half of the violent crashes, but which, nonetheless, leaves an occupant, unless additional protection such as lap belts are used, without protection.

Senator **Danforth**. Is it that the information isn't in and maybe they don't do very much good or what?

Mr. **Peck**. No. The information, actually, is as in as it can be faced with the experience that we have. The 12,000 cars that were put out in 1974, 1975, and 1976 were, although highly developed prototypes, still prototypes. Each of the manufacturers responsible for those cars has continued to develop and improve systems based on experience with those models. So from that standpoint, the cars in the field are not accurate reflectors of what a modern improved system would do. But experience with those cars has also led to some concerns which were not anticipated earlier.

Senator **Danforth**. You are so concerned about them that you don't think that we should proceed with them?

Mr. **Peck**. No. That is not my testimony.

Senator **Danforth**. Should we proceed or should we not?

Mr. **Peck**. As I indicated in my statement, I think we have reached a point where this technology has been developed to a point where a prudent demonstration program is perfectly feasible and perfectly acceptable.

Senator **Danforth**. Why do we have to keep demonstrating things? We have been at this for 10 years now.

Mr. **Peck**. Well, originally, "demonstration programs" in this context tended to mean programs to demonstrate effectiveness. At least one manufacturer now strongly objects to even the use of that phrase because it implies that we mean we are using human beings as guinea pigs. That's not the purpose of the demonstration program that we are talking about now.

The purpose of the demonstration program that we are talking about is to collect sufficient data and to have this technology out there on the highway saving lives everyday instead of once or twice a year so that people will understand both the positives and the negatives of the technology.

Senator **DANFORTH**. Mr. Peck, let me just ask you this. Do you have any doubts that if airbags were installed widely in automobiles that they would save many, many lives, and that they would save many, many serious injuries?

Mr. **PECK**. No.

Senator **DANFORTH**. You have no doubt about that?

Mr. **PECK**. None. They would, indeed, save lives and reduce at least some kinds of injuries.

Senator **DANFORTH**. Do you have any doubt also that the Federal Government has very substantial outlays annually for injuries and for law suits caused by accidents which could be prevented by airbags?

Mr. **PECK**. No. We are reviewing those numbers, and generally, societal cost benefit analyses support a finding that this technology, even at the overall higher ranges of costs that we project would be cost beneficial in terms of the burden on society.

Senator **DANFORTH**. You provided me with statistics in November, did you not?

Mr. **PECK**. I believe we did.

Senator **DANFORTH**. These included your estimates of the savings that Government would realize by virtue of not having to pay for disability in terms of medicaid and medicare and so on as a result of these accidents?

Mr. **PECK**. That is correct. I believe we are reviewing those numbers. They were derived for the first time really in connection with your request. We now believe they are on the high side, but the number is nonetheless substantial and we will supply a corrected version for the record.

Senator **DANFORTH**. It is a substantial number?

Mr. **PECK**. Yes. Senator, I might point out that if I had serious concerns over these issues which we are now discussing, I would not be pushing this project.

Senator **DANFORTH**. Yes. If you had serious concerns about the efficacy?

Mr. **PECK**. About the efficacy, yes. I am concerned that in the past, as I said in the prepared statement, that both the benefits and the drawbacks have been exaggerated. There will be airbags that explode in someone's face for unexplained reasons, but . . .

Senator **DANFORTH**. There are all kinds of things that can go wrong. But there is no doubt at all, is there, that there would be a very substantial net savings?

Mr. **PECK**. I don't believe there is, and that was the end of my previous sentence.

Senator **DANFORTH**. You don't believe there is any doubt?

Mr. **PECK**. No. There will be occurrences where people will have unexplained——

Senator **DANFORTH**. But I mean it's ridiculous to emphasize that, isn't it? It's just ridiculous.

Mr. **PECK**. I'm sorry, I intended to cite it only as a misapprehension. I was not emphasizing it as a reason for failing to proceed with the development of the technology.

Senator **DANFORTH**. It would be very rare. In fact, there have only been two malfunctions in all of these ½ billion miles. Isn't that right?

Mr. **Peck**. I believe the number is about 18. But in any event, it would be certainly within tolerable limits, or what I would consider tolerable limits.

Senator **Danforth**. You are not going to offer any advice as to the trade consequences? I know that that was one of the points that you made in your talk. That you said we are going to be getting a letter on that?

Mr. **Peck**. It's my understanding that either the Office of the Special Trade Representative or the State Department will be supplying a letter.

Senator **Danforth**. Well, I would like to see that because I don't understand that point at all, and I have researched the law on that.

Mr. **Peck**. All right.

Senator **Danforth**. Then the tax consequences. Your position on tax policy—are you stating a position on that or is someone else going to state it?

Mr. **Peck**. I was not stating an administration position. That, of course, will fall to the Treasury. As we review the externalities, including such questions as costs to the Federal Government, we will be developing the discussion within the administration to address that more specifically. At this time for the reasons that I mentioned in the statement, the bill may be addressed to the wrong target, and we may not have fully formulated the tax policy consequences that the bill actually represents.

Senator **Danforth**. As you know, I have supported mandatory installation of passive restraints. Incidentally, the Federal Government does have a variety of mandatory safety requirements on cars. Am I correct?

Mr. **Peck**. Yes, sir.

Senator **Danforth**. They include padded dashboards?

Mr. **Peck**. Yes, sir. We have something like 52 Federal motor vehicle safety requirements.

Senator **Danforth**. Steering column requirements?

Mr. **Peck**. Yes, sir.

Senator **Danforth**. Of glass and windshields—safety glass in windshields, and so forth?

Mr. **Peck**. Yes, sir. Seatbelts themselves?

Senator **Danforth**. Seatbelts themselves. So the idea of another kind of mandatory requirement doesn't pose some sort of philosophical problem?

Mr. **Peck**. Historically, this issue has become an emotional, and, therefore, philosophical problem. Theoretically, it shouldn't. It is an issue which has received much more of the wrong kind of attention and very little of the right kind of attention it should have.

Senator **Danforth**. I'm just trying to figure out how to get them in. I mean I am for mandatory installation, and then the administration says they are not for mandatory installation. I say, well, let's figure out a different way of approaching it. Let's use the Tax Code to see if we can't figure out some mechanism on that. Your position is, no, that's not the approach. What do you want to do?

Mr. **Peck**. As I just indicated, the position on the tax policy approach as set forth in this legislation has been presented by the representative from the Treasury Department. Other alternatives during the course of our discussions or the development of the work by the Committee, may be presented that would raise that question in a different context.

Senator **Danforth**. Then you can understand. I would hope that my frustration with trying to find any approach that the administration would go with. I mean here we are going from medium sized cars to smaller cars. The loss of life in this country as a result of moving to smaller and smaller cars—if we are going from about 52,000 to about 70,000 losses of lives. My view is, well, let's figure out what we can do to save some of these people. I've tried out a couple of ideas and the answer is, no, we don't like that; no, we don't like that. What do you like?

Mr. **Peck**. I would sign the Coleman agreement tomorrow as I said in the announcement of my 208 decision for several reasons. As I mentioned in the statement, it sets groundrules; it allows the introduction of technology that would minimize the technological concerns—for example, driver side only air bags. It allows the orderly introduction of economic protection for the manufacturers because, historically, as any major new technology comes into play, particularly safety technology, there can be considerable product liability exposure. That experience is so far of mixed value. We are reviewing the transcripts and the proceedings of those litigations that have been brought with respect to those 12,000 cars.

There are complex problems with imposing this technology across the entire fleet that relate not only to economics but to the technology itself. There are some questions that I am convinced still remain with respect, particularly, to smaller cars.

Senator **Danforth**. Will you spell that out? Because that's not clear to me—what your position is on that.

Mr. **Peck**. I will give you an example with the caveat that we still have this under discussion among our technical experts as well. At least one of the manufacturers with which I raised this discussion gave us a technical presentation addressing a set of concerns generated by the development side of the house, concerns that with a smaller car and thus a smaller oth occupant compartment and amount of crash space within which energy can be managed, it was necessary to open the gates of the ignitor device, the filter through which the gas passes as it is ignited in order to deploy the bag, to such a degree that the actual noise level on deployment exceeded the level at which it was generally thought permanent hearing impairment would occur.

Now, if you are in the middle of a violent crash, that is a matter of relatively little concern. But if you are facing the public with a marketing strategy to sell a new technology, it highlights all of the other concerns which, as yet, are not resolved in the public view concerning such questions as whether they will deploy inadvertently and so on. Those kinds of problems are what I am talking about. I do not know of any problems that the engineers working on the issue are not confident can be designed around. But they are not there yet, and so mandating air bags across the entire fleet now would, in that respect, be premature. That is what I was referring to in the statement.

I might add that we are reviewing all of these issues from the technical standpoint and independently verifying as much as is possible to be verified.

Senator **DANFORTH**. Do you have a position on whether or not a refundable tax credit offered to the manufacturers for the cost of airbags would be an alternative to this bill?

Mr. Peck. I would have to defer in the first instance to the Treasury Department for a view on that.

Senator **DANFORTH**. We have dealt you a couple of hands and we would like you to——

Mr. **PECK**. I understand. I do not intend this to be my farewell appearance before the committee on this issue or even on this bill because we are continuing actively to pursue these issues. I do not intend to let up on that question.

Senator **DANFORTH**. Senator Byrd.

Senator **BYRD**. Your primary responsibility is highway safety?

Mr. **PECK**. Yes, sir.

Senator **BYRD**. You oppose this legislation?

Mr. **PECK**. Yes, sir.

Senator **BYRD**. Thank you.

Senator **DANFORTH**. Thank you, Mr. Peck.

(Whereupon, at 2:41 p.m., the hearing was adjourned.)

[By direction of the chairman the following communications were made a part of the hearing record:]

STATEMENT OF THE AUTOMOTIVE OCCUPANT PROTECTION ASSOCIATION TO THE SUBCOMMITTEE ON TAXATION, UNITED STATES SENATE, JANUARY 28, 1982, ON S.1887, AMENDMENT TO THE INTERNAL REVENUE CODE OF 1954.

The Automotive Occupant Protection Association is a group of companies and individuals dedicated to the reduction of the number of deaths and injuries which result from automobile accidents.

Among the Association's members are the manufacturers of auto safety equipment, particularily air bags, their suppliers, insurance companies, and others who share a common goal of safer cars.

Our Association supports the legislation (S.1887) introduced by Senator John Danforth. This unique and innovative approach to solving a national public health problem of ever-increasing magnitude deserves the support of all Americans who hope to end the tragedy which unfolds hundreds of times each day on highways across our country.

For many years, the Congress, the Department of Transportation, consumer groups, medical organizations, engineering and automotive societies, and thousands of citizens had awaited the full implementation of FMVSS 208, the federal safety standard which required new automobiles to be equipped with automatic restraints, including air bags.

In October 1981, only days after releasing a report predicting dramatically increasing numbers of highway deaths and injuries during the 1980's, the DOT rescinded the standard which required this life-saving equipment. The underlying reason for this recission was the alleged short-term impact of the standard upon the domestic auto industry.

The legislation being considered today would eliminate the concern that building safer cars would cripple the industry. Under the provisions of S.1887, the auto manufacturer would be rewarded with a tax credit for each air bag-equipped automobile sold. This $300 credit would, when measured against the mass produced quantities of air bags, cancel most, if not all, of the price differential between cars with air bags and those without.

Our Association would, in fact, offer a suggestion which would make this legislation even more attractive. Because the driver is the most likely potential victim in a auto crash and in order to encourage the more rapid installation of air bags, we urge that the full tax credit be given to manufacturers who sell automobiles equipped with driver-only air bag systems.

The excise tax portion of S.1887 would serve the societal purpose of encouraging the auto maker to install air bags he produces, thus qualifying for the tax credit and avoiding the additional tax.

These measures would end the current situation of the public being denied these advanced safety systems for allegedly economic reasons.

In August 1981, the air bag manufacturers told the DOT public hearing on FMVSS 208 that air bags produced in quantities of 2 million or more would add less than $200 to the price of a new car. These projected large-scale production costs have not been rebutted. In today's auto showrooms, precious few options, such as radios and fancy seat covers, cost this little.

Historically, during the introductory period of many new optional automotive products, the rate of sales of that option may be rather slow unless an extraordinary effort is made to market the item. This bill, however, encourages the rapid increase in quantities of air bags, quickly reducing the price per item while preventing unnecessary deaths and injuries. The projected high costs of air bags are based upon extremely low production volumes and these costs would drop precipitously when greater quantities are manufactured.

Today, only the most hardline opponents of air bags question their effectiveness and reliability. Even General Motors in congressional testimony last summer said it was satisfied with its system's performance and that the decision to terminate the GM air bag program was purely "business".

S.1887 would benefit the public and government by reducing the $6 billion annual cost of auto accidents. It would benefit the domestic auto industry by providing an economic avenue for the industry's more rapid move toward air bags and safer cars. The bill would benefit the consumer by making available safer cars, by reducing insurance costs, and by reducing pain, suffering, and economic loss to those involved in auto accidents.

Yet another positive aspect of S.1887 is that by encouraging the domestic auto industry to build safer cars, it would pre-empt the likelihood of foreign manufacturers unilaterally building safer cars and using the improved safety performance as a marketing feature, as they have done with fuel economy and workmanship in recent years.

Foreign car makers are continuing to refine their air bag programs, developed in conjunction with American air bag suppliers. It is very likely that our own technology may be forced overseas by a hostile domestic industry, only to be re-bought when the domestic industry decides it must catch up with its foreign competitors.

We strongly believe S.1887 as introduced, or modified to include driver-only air bags, will resolve the economic objections to air bags, just as engineering and scientific advancements have resolved technical objections.

It is now time to end the continual wrangling over air bags. We would not deny our citizens the right to receive polio vaccine. We do not deny our citizens the right to fly in airplanes made as safe as technically possible. There is no longer any reason -- technical or economic -- to deny them the safest possible automobile.

We urge the committee to act favorably on S.1887 and we urge its speedy enactment into law.

The national disaster on our highways must not continue.

# # #

PRICE BREAKDOWN FOR 2 MILLION AIR BAG EQUIPPED AUTOMOBILES
(1981 Dollars)

$ 65	---	Module (air bag, inflator, sheet metal)
30	---	Sensors, Diagnostic System, Wiring
10	---	Slip-ring assembly, Decorative Cover, Misc.
$ 105	---	TOTAL COST FOR PARTS
37	---	Installation and Special Tooling (35%)
$ 142	---	TOTAL COST PER VEHICLE
21	---	Profit to Manufacturer (15%)
$ 163	---	Cost to Dealer
49	---	Dealer Profit for Optional Accessory (30%)
$ 212	---	TOTAL PRICE TO CONSUMER FOR AIR BAG (Including all mark ups)

$ 212	---	TOTAL PRICE TO CONSUMER
- 27	---	Incremental cost reduction for changing from today's three-point belts to manual lap belt
$ 185	---	PRICE INCREASE PER CAR TO CONSUMER

-- AUTOMOTIVE OCCUPANT PROTECTION ASSOCIATION

C. M. KENNEDY
DIRECTOR
FEDERAL GOVERNMENT AFFAIRS

CHRYSLER
CORPORATION

February 9, 1982

The Honorable Bob Packwood
Chairman, Subcommittee on
  Taxation & Debt Management,
Committee on Finance
2227 Dirksen Senate Office Building
Washington, DC 20510

Dear Mr. Chairman:

Subject: Senate Bill S.1887, To Amend the Internal Revenue Code of 1954 to Expedite the Installation of Automatic Safety Air Bags

We have reviewed the proposed legislation and the testimony at the hearing devoted to it. We had hoped the bill would encourage a passive restraint field test similar to that negotiated by Secretary Coleman. That program was designed to answer basic questions about air bag crash performance and public acceptance. Secretary Coleman rightly believed that questions of safety and consumer acceptance had to be answered before air bags could be mandated for the general public. Unfortunately, that program was terminated by Secretary Adams. Today, no one knows how well air bags work in real-world crashes. Equally important, nobody knows how the general public, which refused to buy air bags voluntarily, will react if forced to buy them by government mandate. To help answer these questions NHTSA is again pursuing a cooperative government/industry field test; at least one automobile manufacturer has already expressed interest in participating.

S.1887 seeks to bring air bags to market before we answer these important questions. Implicitly, it assumes that air bags work well in accidents, and despite the added cost of more than $300 and the limited protection of air bags, that the public will accept them without significant protest. These assumptions cannot be supported. In fact, car buyers are more likely to reject air bags than we thought earlier, since the customer cost would be much higher than we first estimated.

If S.1887 is enacted we expect overwhelming public rejection because:

- It raises the cost of non-air bag cars by $300, giving nothing in return.
- Installing air bags in cars will increase car prices by the cost of air bags less $300. Even with a $300 offset to manufacturers, the cost of air bag cars would rise sharply, probably by several times the $300 allowance. Replacement costs, acknowledged to be about 2-1/2 times the new car price, would raise the total cost to car owners even higher.

P. O. BOX 1919, DETROIT, MICHIGAN 48288

- Since air bags cost much more than the $300 offset to manufacturers, we predict few cars would be equipped with them. In that case, most cars would be taxed $300 for no reason. The result of this bill may be depressed car sales, because of higher prices, but little else.
- If most cars were equipped with air bags, several billions of tax money would be required annually for the $300 subsidy. We doubt that these funds would be made available.
- Safety belts, if used, would save more lives than air bags, and at far less cost. We think that an aggressive Federal program to promote belts in the millions of cars already equipped with them can be more productive than the alternatives suggested in this bill.

This brief discussion touches only the highlights. There are many other air bag shortcomings which must be investigated before air bags can be required on production cars. We need much better data on the frequency of inadvertent deployment, on owner and passenger reaction when told they should fasten lap belts even in air bag cars, on the cost of air bag replacement, on the effect on insurance premiums and on increased product liability costs.

Air bag proponents present the air bag as a simple, low cost, effective solution to an auto safety problem. It is not. It is a complex, sophisticated mechanism whose performance is unproven and whose costs are very high. In view of its limitations and the many unresolved questions regarding air bags, it is inappropriate for government to require people to buy them, either by regulation or legislation. It is surely unwise to tax car buyers who choose not to buy them. We believe any attempt to require consumers to buy air bags, or to penalize those who do not, will fail. We recommend that S.1887 be withdrawn until field test results are available.

We will be happy to discuss our conclusions with you or your staff in more detail, and we hope to do so. Our Washington Office is making arrangements for a meeting in the very near future.

Sincerely,

C. M. Kennedy

C. M. Kennedy
Director,
Federal Government Affairs

CMK/ks

cc: Members of the Senate Committee on Finance

INSURANCE FROM
CNA

CNA INSURANCE COMPANIES
CNA Plaza
Chicago, IL 60685

Edward J. Noha
Chairman of the Boards and
Chief Executive Officer of
the CNA Insurance Companies

January 27, 1982

The Honorable Bob Packwood
Senate Office Building
Washington, D. C. 20510

Dear Senator Packwood:

I am pleased with your recent decision to hold a hearing on S. 1887, a bill to encourage the installation of air bags in domestically manufactured automobiles through the use of tax incentives. The bill is presently pending in the Finance Committee, Subcommittee on Taxation and Debt Management.

Recently, as you are undoubtedly aware, the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) rescinded its motor vehicle safety standard requiring passive crash protection — both automatic seat belts and air bags. Yet, consumers seem to want air bag protection in their automobiles. A 1980 New York Times survey that sampled the opinions of licensed drivers, for example, found that 68 percent of those surveyed support air bag installation. A Gallup survey three years earlier also showed strong support for air bags.

Aside from the proven consumer preference for air bags, the human-tragedy and economic aspects of NHTSA's unfortunate decision should not be overlooked. Rescission of this safety requirement will lead to an increase in lives lost, an escalation of permanent injuries, and an economic loss that will surely rise above the present $20-billion-a-year total.

In light of these tragic consequences, we strongly support S. 1887. This legislation would meet the Administration's allegation that automatic seat belts would not be used by encouraging the installation of air bags. It would also address the automobile industry's objection to air bags by shifting the cost of equipping cars with air bags from manufacturers to the federal income tax base.

We support your efforts regarding this most timely legislative proposal. If we can assist you in any way, please advise.

Sincerely,

EJ Noha

Statement of

General Motors Corporation

Submitted to the

Committee on Finance

U. S. Senate

Subcommittee on Taxation and

Debt Management

On S. 1887

January 28, 1982

Washington, D.C.

General Motors Corporation welcomes this opportunity to comment on S. 1887, a proposal that would provide tax credits to automobile manufacturers for installing air bags and tax the sale of automobiles not equipped with air bags.

There is reason to question whether government taxing authority should be used this way to influence the direction of technology and consumer choice in the marketplace. From a practical point of view, such an action can have serious side effects. For example, it will (1) penalize belt users, (2) discriminate against small car purchasers; (3) reduce the competitiveness of small, fuel-efficient cars; and (4) increase the cost of government. Moreover, air bags were not well-accepted when they were offered as options on GM cars in 1974-76 at a price well below cost. Finally, the bill is inconsistent with the express intent of Congress to set performance standards rather than impose design specifications.

Penalizing Belt Users

The three-point manual seat belt is a proven system that actually provides better protection in more kinds of accidents than an air bag alone. However, under this bill, those who choose to continue to avail themselves of the proven protection of seat belts would be penalized by the imposition of an excise tax.

Discrimination Against Small Car Buyers

The bill does not recognize that because most air bag technology has been developed for large cars it will not be possible to offer air bags in small cars for some time. The more comprehensive redesign and testing required in the case of small cars would consume three or four more years of lead time per car line. These lead times would overlap but would not be simultaneous. This estimate assumes that the technology to put air bags in small cars can be fully developed and will not have serious side effects. In the meantime, Americans would be forced to pay a $300 "small car tax" for choosing more fuel-efficient cars while the government subsidized production of heavier cars.

Small Cars Would Be Made Less Attractive

While small cars and air bag systems are being re-engineered for compatibility, the cost to consumers of small cars will increase by the amount of the excise tax. This increase is bound to make these cars less attractive and depress sales.

Once installed, the air bag will add at least 55 lbs. to the weight of the car, thus diminishing its degree of fuel economy. It may even be necessary to lengthen some small cars several inches to incorporate an air bag. In a market that demands economy and fuel efficiency these longer, heavier models may be at a serious competitive disadvantage.

Net Cost of Government Would be Increased

The arrangement of tax credits and excise taxes proposed in S. 1887 would not result in a net savings to taxpayers even if it succeeded in encouraging the installation of air bags in every car. The actual cost to the consumer of producing air bags would not be $300, but well in excess of that, perhaps as much as twice that amount, if air bags were produced in high volume quanities for several GM car lines. Therefore, tax credits sufficient to cover the cost of providing air bags would have to be substantially higher than the $300 figure proponents of this legislation used in estimating the bill's net benefits.

Air Bags Failed Their Market Test

For a number of possible reasons, air bags failed the market test dramatically when they were offered as options in GM luxury cars in 1974-1976. GM tooled to produce 100,000 units each year, but even though the air bags were offered at an option price far below cost, at $225 to $315 per unit, sales amounted to a total of only 10,000 units in three years -- and sales declined each of these years. This low level of sales occurred in spite of the fact that for part of this time the alternative to ordering an air bag was to have the highly unpopular ignition interlock system, which required seat belts to be fastened before the car could be started.

GM does not resist production of options, even high cost options such as air conditioning, when there is evidence of consumer demand. There simply is not such evidence of demand, however, in the case of air bags.

Design Specifications vs Performance Standards

In addition to having the effects listed above, this proposal would depart from an important principle established during passage of the National Traffic and Motor Vehicle Safety Act, that of setting performance standards rather than imposing design specifications. In passing this Act, the Senate Committee wrote: "...both the interim standards and the new and revised standards are expected to be performance standards, specifying the required minimum safe performance of vehicles but not the manner in which the manufacturer is to achieve the specified performance... such safe performance standards are thus not intended or likely to stifle innovation in automotive design." The House Committee agreed in certain terms, "The Secretary is not to become directly involved in questions of design."

By requiring that the specific technology of the air bag be used, the government would discourage development of other technologies which may be more effective.

More Promising Areas for Government Involvement

There are other areas where attention is badly needed if our nation's traffic safety record is to be improved. One of these areas is drunk driving, where the need for better enforcement of local laws is obvious and critical. It is generally accepted that about half of all traffic fatalities are alcohol-related. This figure represents far more lives than air bags could save.

Other areas where government involvement may be beneficial and where benefits would begin to accrue immediately are improved roads and seat belt education. In fact, if there must be another mandate from government to reduce traffic injuries and fatalities, a law requiring the use of seat belts would probably save more lives, sooner and at far less cost than S. 1887.

We cannot afford to have government do for citizens what they can do for themselves -- and the means for providing highly effective occupant protection are available in the seat belts found in almost every car on the road today. As an automobile manufacturer, we appreciate the interest this proposal reflects in remedying the single greatest drawback of the air bag -- its cost. Unfortunately, shifting this cost to society at large cannot be accomplished without serious consequences and would not, in any event, diminish that cost.

2422 Vista Ct.
Ludlow, Ky 41016
Feb. 3rd 1982

Senate Finance Subcommittee
on Taxation and Debt Management
Senate Office Building
Washington, D.C. 20510

Gentlemen -

Why do you insist on taxing the consumer to force him to use an airbag in his automobile?

Gentlemen I always used seatbelts, until you said I could not drive the automobile I purchased unless I wore the seat belt you had decided I *must* wear - you even rigged the seat belt to the starting mechanism.

So I, like thousands of others, decided that was our decision - not yours - and ways were found to bypass the mechanism.

But you still persist - sitting thousands of miles away, snug in the knowledge that you know what is best for me - and if I don't know it, you'll force me into it - that will teach me.

So thanks to you we have the $9,000.00 automobile trying to survive in a bankrupt industry of a third rate *country*. Congratulations - you take care of the airbags and let the little stuff take care of itself - like the MIGs in Cuba. Now that's a thought why don't you try pushing Cuba around and leaving us alone? Afraid?!

J. Lombard

J. Lombard

FRANCIS T. PURCELL
COUNTY EXECUTIVE

COUNTY OF NASSAU
TRAFFIC SAFETY BOARD
ADMINISTRATION BUILDING
MINEOLA, NEW YORK 11501

RICHARD F. MC GUINNESS
CHAIRMAN

PAUL L. STREB
VICE CHAIRMAN

JOSEPH C. BRANCA
SECRETARY

JOHN F. BLENN
EXECUTIVE DIRECTOR

516 535-5032

January 18, 1982

Senator Robert Packwood
Chairman of the Subcommittee on
Taxation & Debt Management
United States Senate
Washington, D.C. 20510

Dear Senator Packwood:

At a meeting of the Nassau County Traffic Safety Board on January 14, 1982, the Board wholeheartedly supported the recommendation that we send you a letter in favor of legislation #S1887 to allow car makers a $300 tax credit for each car equipped with air bags and a $300 excise tax on each car sold without air bags.

The Nassau County Traffic Safety Board has fully supported air bags in motor vehicles as recommended by the National Highway Traffic Safety Administration in past years and the Board's position on this matter has not changed.

Thank you for your consideration in this matter.

Very truly yours,

Richard F. McGuinness
Richard F. McGuinness
Chairman

John F. Blenn
John F. Blenn, Director

RFG/JFB/lh

MERCEDES-BENZ OF NORTH AMERICA, INC.

W. R. F. BODACK
PRESIDENT

ONE MERCEDES DRIVE
P. O. BOX 350
MONTVALE, NEW JERSEY 07645
(201) 573-2200

March 3, 1982

Honorable John C. Danforth
U. S. Senate
Room 460
RSOB
Washington, DC 20510

Dear Senator Danforth:

Thank you for your recent letter requesting a report from Daimler-Benz regarding air bag technology. We appreciate your giving us the opportunity to express ourselves on this matter.

As was reported during the hearings on your bill S.1887, our parent company, Daimler-Benz AG., since December 1980 has offered in Germany, as an optional extra, a restraint system consisting of standard inertia-reel safety belts, an air bag incorporated in the steering wheel hub, and a belt tensioner on the front passenger side. Since that time, this option is also available in most European countries. Models for which the option is available in Germany include the 280S, 280SE, 280SEL, 380SE, 380SEL, 500SE, and 500SEL. Of these, only the 380SEL is marketed in the U.S. but equipped, of course, so as to satisfy current U.S. safety and emission control requirements. To date 3500 vehicles equipped with the restraint system option have been delivered. A detailed technical description of the European and U.S. restraint systems is contained in the enclosed SAE report by W. Reidelbach and H. Scholtz, Daimler-Benz' R & D Department, entitled "Advanced Restraint System Concepts".

It should be emphasized that the Daimler-Benz European restraint system described here would not be offered in U.S. version models because its effectiveness depends on whether or not the active 3-point seat belt is in use. It was felt that the restraint option could be offered in Germany to test market acceptability since seat belt use is required by law, but not in the U.S. where seat belt usage, as you know, is at an extremely low rate.

There has been only one deployment of the system of which we are aware. In this episode, a Mercedes-Benz 380SEL collided with a Citroen in a 45 degree frontal collision. The vehicle speed was equivalent to a test speed of 25 to 30 km/h (16 to 19 mph). Neither occupant suffered injury due to the crash because of the low crash speed. Daimler-Benz engineers report that the driver air bag had neither a positive nor negative influence, since lack of injury to the driver was due entirely to the use of the seat belt.

With regard to S.1887, we feel that it would unfairly discriminate against foreign-made vehicles which we believe, as Administrator Peck pointed out, raises serious international trade questions. If the purpose of the bill is to encourage air bag acceptance in the marketplace, providing a tax incentive to the consumer might help achieve such a goal. At the same time, a manufacturer/importer who would offer air bag technology in the future might be permitted certain tax relief considerations due to the decade long development costs required as a result of government rulemaking, which in the final analysis was revoked.

I hope the information provided has been responsive to your inquiry. If we can be of further help, please do not hesitate to contact us.

Sincerely yours,

Enclosure

NATIONWIDE INSURANCE COMPANIES
HOME OFFICE: ONE NATIONWIDE PLAZA, COLUMBUS, OHIO 43216

PAUL A. DONALD
CPCU · CLU
PRESIDENT

Fyi
JWC

February 8, 1982

The Honorable John C. Danforth
460 Russell Senate Office Building
Washington, DC 20510

Dear Senator Danforth:

I want to take this opportunity to commend you for your ongoing efforts to help bring about the introduction of air bags in American automobiles.

I am referring not only to your leadership in seeking a legislative route to make air bags available to consumers, but specifically your strong defense of this most advanced auto safety technology during the January 28 hearings on S. 1887.

Like you, we at Nationwide deplore the fact that a safety device that could be saving thousands of lives annually, preventing disfiguring injuries and saving the country billions of dollars is being relegated to disuse.

Certainly at a time when "cost effectiveness" is being emphasized as a necessary base against which to measure government regulations and legislation, federal initiatives to make air bags available to car buyers should be high on [illegible] list for enactment.

I would suspect that 50 years from now, when air bags are a routine safety feature in cars, the auto industry will have a difficult task trying to justify their former unwillingness to voluntarily offer this important safety devise to the public.

During the subcommittee's hearings, Nationwide Safety Director Douglas Fergusson cited cost-savings estimates that Nationwide compiled regarding the annual insurance savings possible if all cars were air bag-equipped. Based on 1979 industry data, annual savings would have been $4.2 billion from casualty insurance alone.

NATIONWIDE MUTUAL INSURANCE CO. · NATIONWIDE MUTUAL FIRE INSURANCE CO. · NATIONWIDE GENERAL INSURANCE CO. · NATIONWIDE PROPERTY AND CASUALTY INSURANCE CO.

I have enclosed those estimates, along with a copy of Mr. Fergusson's testimony delivered last August before the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) when the agency was considering the future of Safety Standard 208, and before its unwarranted decision to rescind the rule.

I believe the facts we presented then, especially concerning the increasing hazards from having a fast multiplying number of small cars on the road, establish clearly the pressing need for air bags in automobiles.

I would like to submit my letter and the enclosed information for the record regarding S. 1887. If we can be of further assistance in discussing this ongoing problem, please contact me or a member of our Washington staff.

Sincerely,

Paul A Donald

Paul A. Donald

lap
Encl.

CALCULATION OF ANNUAL INSURANCE SAVINGS FROM AIR BAGS

I. Auto Insurance Savings - Industry

Estimated reduction - 24.6% of Personal Injury Premium (first-party coverage and third-party liability coverage)

1979 Private Passenger Personal Injury Premium estimated at $17.7 billion

.246 of $17.7 billion =$4.207 billion

II. Eighty Percent of Registered Vehicles insured

.80X120, 247.990 (registered passenger cars -1979) = 96,198,400

III. Savings Per Insured Car Per Year

=$43.73

STATEMENT

OF

NATIONWIDE MUTUAL INSURANCE COMPANIES

COLUMBUS, OHIO

PRESENTED BY

DOUGLAS M. FERGUSSON

DIRECTOR OF SAFETY SERVICES

BEFORE

U. S. DEPARTMENT OF TRANSPORTATION

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

ON

OCCUPANT CRASH PROTECTION

(DOCKET NO. 74-14; NOTICE 23)

WASHINGTON, D. C.

AUGUST 5, 1981

STATEMENT
OF
NATIONWIDE MUTUAL INSURANCE COMPANIES
ON
MOTOR VEHICLE SAFETY STANDARD 208

DOCKET NO. 74-14; NOTICE 23
AUGUST 5, 1981

MY NAME IS DOUGLAS M. FERGUSSON. I AM DIRECTOR OF SAFETY SERVICES OF THE NATIONWIDE INSURANCE COMPANIES, WHICH ARE BASED IN COLUMBUS, OHIO. NATIONWIDE IS THE NATION'S FOURTH LARGEST AUTOMOBILE INSURER, INSURING MORE THAN 4-1/2 MILLION MOTOR VEHICLES.

IN ITS NOTICE OF PUBLIC HEARING, THE AGENCY TOOK GREAT CARE TO REQUEST THAT WITNESSES PRESENT ONLY INFORMATION AND ARGUMENTS NOT PREVIOUSLY DISCUSSED OR MADE AVAILABLE. WE RESPECT THIS REQUEST BUT FEEL COMPELLED TO DESCRIBE BRIEFLY, FOR THE NEW ADMINISTRATION, THE BACKDROP AGAINST WHICH WE APPEAR TODAY.

DURING THE PAST 12 YEARS, NATIONWIDE HAS CAMPAIGNED VIGOROUSLY TO INFORM POLICYMAKERS ABOUT THE LIFESAVING AND ECONOMIC BENEFITS OF AUTOMATIC CAR-CRASH PROTECTION. COMPANY SPOKESMEN HAVE APPEARED AT LITERALLY DOZENS OF LEGISLATIVE AND REGULATORY HEARINGS IN SUPPORT OF THESE PROVEN PROTECTION SYSTEMS.

DURING THIS PERIOD, WE BECAME CONVINCED OF THE CONTRIBUTION THIS PROTECTION WOULD MAKE TOWARD REDUCING HIGHWAY CRASH COSTS, AND WE BECAME THE SECOND INSURANCE COMPANY TO OFFER A 30% DISCOUNT ON FIRST-PARTY MEDICAL COVERAGE FOR OWNERS OF CARS EQUIPPED WITH AIR BAGS. THIS OFFER CAME AFTER A DECADE OF OUR OFFERING INCREASED INSURANCE FOR WEARERS OF SEAT BELTS -- A PROGRAM WHICH REMAINS IN EFFECT TODAY. THE AIR BAG DISCOUNT AND EXTRA INSURANCE FOR SEAT BELT WEARERS ARE EXAMPLES OF NATIONWIDE'S COMMITMENT TO ITS BELIEF IN THE VALUE OF OCCUPANT PROTECTION.

INSURANCE AFFORDABILITY IS ALSO A HIGH PRIORITY WITH NATIONWIDE, AND, OF COURSE, IT IS OF INCREASING CONCERN TO MANY AMERICANS. IT SEEMS CLEAR THAT THE MAJOR REASON FOR THIS IS THE PERVASIVENESS OF CAR OWNERSHIP. IN 1979, 85% OF U. S. HOUSEHOLDS OWNED AT LEAST ONE CAR -- THAT WAS AN INCREASE OF 5 PERCENTAGE POINTS IN JUST 5 YEARS. THIRTY-SEVEN PERCENT HAD TWO OR MORE CARS. THAT MAKES CAR OWNERSHIP IN AMERICA COMMONPLACE, AND WORRIES OVER ITS COSTS ARE NOT LIMITED TO THE WELL-TO-DO. AMONG REGISTERED OWNERS, 40% HAD INCOMES OF LESS THAN $15,000 A YEAR, WHILE 50% OF THE PRINCIPAL DRIVERS HAD INCOMES UNDER THAT LEVEL.

IN 1974, 83% OF AMERICAN WORKERS DEPENDED ON AUTOMOBILES TO GET TO AND FROM WORK. BY LAST YEAR, THAT FIGURE HAD MOVED UPWARD TO NEARLY 88%. WHETHER OR NOT SUCH HEAVY RELIANCE ON PRIVATE PASSENGER CARS IS DESIRABLE OR EVEN NECESSARY IS IRRELEVANT. THE FACT REMAINS THAT THE VAST MAJORITY OF WORKING AMERICANS HAVE COME TO DEPEND ON THE PRIVATE PASSENGER CAR TO HELP THEM EARN A LIVING.

IT IS FOR THIS REASON THAT WE ARE IN CONSTANT PURSUIT OF EFFECTIVE LOSS REDUCTION AND CONTROL METHODS. WE ARE ACUTELY AWARE THAT WE CANNOT EXIST AS A COST PASS-THROUGH INSTITUTION. NO LONGER CAN WE EXPLAIN AWAY SPIRALING RATES AS THE FAULT OF UNCONTROLLABLE COSTS, AND THEN COLLECT ADDITIONAL PREMIUMS TO OFFSET THEM.

WE HAVE FEW OPPORTUNITIES AVAILABLE WHICH HOLD AS MUCH PROMISE FOR RESISTING LOSS AS DO THE AUTOMATIC RESTRAINT REQUIREMENTS OF FMVSS 208. SO WE REAFFIRM TODAY OUR BELIEF THAT AUTOMATIC PASSENGER PROTECTION IN AUTOMOBILES OFFERS THE BEST CHANCE FOR REDUCING THE MEDICAL AND DISABILITY COSTS FOR WHICH INSURANCE MUST PAY -- COSTS THE CONSUMER ULTIMATELY MUST BEAR. IN FACT, WE KNOW OF NO OTHER COUNTERMEASURE FOR AUTOMOBILE INSURANCE COST CONTAINMENT THAT HOLDS THE SAME PROMISE. INDEED, FOR THE IMMEDIATE FUTURE, AUTOMATIC PASSENGER PROTECTION IS THE BEST HOPE FOR KEEPING BADLY NEEDED FINANCIAL PROTECTION AFFORDABLE TO THE MAJORITY OF MOTORING AMERICANS.

WHILE THE PROJECTED INSURANCE COST SAVINGS ESTIMATES ARE NOT NEW, THIS IS THE FIRST TIME SINCE 1977 THAT WE HAVE HAD AN OPPORTUNITY TO UPDATE OUR CALCULATIONS IN A PUBLIC HEARING. BASED ON 1979 INDUSTRY DATA, WE NOW SHOW THAT ANNUAL SAVINGS WOULD HAVE BEEN $4.2 BILLION THAT YEAR IF ALL CARS HAD BEEN AIR BAG-EQUIPPED. AND THAT SAVINGS IS FROM CASUALTY INSURANCE ALONE.

More importantly, to the individual policyholder, that represents an automobile premium savings of nearly $44 per year per insured car. For the expected 10-year lifetime of a car, the insurance savings would be well over $400. While insurance savings alone cannot and should not be expected to bear the TOTAL cost of improved crash protection, it in fact goes a long way toward doing just that.

It is not my intent to review the entire 10-year litany of interior crash protection efforts. However, one recurring, disturbing fact bears mention: the level of voluntary seat belt use continues its downward trend until now only about 1 of 9 people wears a seat belt. This in spite of massive efforts to change motorists' behavior toward buckling up.

We were appalled earlier this year when a one-year delay on automatic restraints was proposed and then ordered, and we are now bewildered that a full recision of the Standard is suggested. At a time when belt use is declining, small-car use is increasing, highway speeds are on the rise, and ALL forecasts are for increased highway casualties, it is truly preposterous that we are today debating any option on this provision of Safety Standard 208.

IT IS NOW WELL ESTABLISHED THAT THE ACCELERATION OF THE DOWNSIZING OF THE AMERICAN PASSENGER CAR WILL CONTINUE WELL INTO THIS DECADE. ALTHOUGH THE ADVANTAGES AND DISADVANTAGES OF SMALL-CAR OWNERSHIP HAVE BEEN EXTENSIVELY PUBLICIZED, ONE DIMENSION THAT HAS GENERALLY ELUDED IDENTIFICATION AND DEFINITION HAS BEEN "SYSTEM INCOMPATIBILITY."

WHILE THE NATIONAL TRANSPORTATION SAFETY BOARD DESCRIBED THIS PROBLEM AS EARLY AS 1969, IT DID NOT COME TO BE RECOGNIZED AS A SERIOUS THREAT TO OCCUPANT SAFETY UNTIL RECENTLY. IN THE SUMMER OF 1979, THE NATIONAL HIGHWAY SAFETY ADVISORY COMMITTEE BECAME AWARE OF CONFLICTS BETWEEN THE HIGHWAY SYSTEM AND DOWNSIZED PASSENGER VEHICLES. IN JULY, 1980, THE COMMITTEE RELEASED A REPORT OF THE FINDINGS AND RECOMMENDATIONS OF A TASK FORCE ESTABLISHED TO STUDY THIS THREAT. SINCE THEN, INCREASED ATTENTION HAS BEEN DIRECTED TOWARD THIS ISSUE BY ENGINEERS AND RESEARCHERS.

BEFORE REVIEWING SOME OF THE PROBLEMS SMALL CARS HAVE WITH IN-PLACE HIGHWAY HARDWARE, LET'S EXAMINE THE RECORD:

- IN 1979, SUBCOMPACT FATALITIES ACCOUNTED FOR MORE DEATHS THAN ANY OTHER CLASS OF VEHICLE.

- IN 1979, SMALL CARS WERE ONLY 38% OF ALL REGISTERED VEHICLES, BUT THEY ACCOUNTED FOR OVER 55% OF OCCUPANT DEATHS IN TWO-VEHICLE CRASHES.

- In 1979, the fatality rate for subcompacts was 233% higher than that for large cars, and 150% higher than for all cars.

- 51% of all fatal car crashes involve only one vehicle, and 38% of all cars involved in such crashes are small cars.

There is no doubt about it: when a crash occurs, small cars are dangerous to be in, period. On our roads as they are today, small cars are even more dangerous. Allow me to illustrate.

First, the present standard "W" beam traffic barrier (i.e., guardrail) is mounted with the bottom of the rail approximately 17 inches above the road. This allows the wheels on most small cars to go under the rail and snag the post, thereby bringing the vehicle to an abrupt halt rather than deflecting it. Also, recent research indicates that the small-car MacPherson Strut suspension system, on impact with a barrier, causes the wheel to lie flat on the ground and slide under the rail, again snagging the post.

Next, lower ground clearances on small cars cause another snagging problem when striking a breakaway sign or luminaire support. This happens because the exposed rigid base for the slip plate is usually six inches above ground, while very few, if any, cars made in the U. S. since 1978 could clear a six-inch-high object. In fact, very few could clear a four-inch object.

IN ANOTHER SITUATION, LABORATORY CRASH TESTS REVEAL THAT A SMALL CAR HITTING A 6-POUND BACK-TO-BACK "U" POST -- THE TYPE EXTENSIVELY USED FOR SMALL TRAFFIC SIGNS -- IS MORE LIKELY TO ROLL OVER THAN A LARGE VEHICLE.

LOWER DRIVER EYE HEIGHT (MORE THAN 1/2 FOOT LOWER THAN PREVIOUS AVERAGE) REDUCES SIGHT DISTANCES AT HILL CRESTS, INTERSECTIONS, OVER AND AROUND OTHER VEHICLES, AND BEYOND HIGHWAY OBJECTS SUCH AS HEDGES AND GUARDRAILS. ALL OF THESE FACTORS GREATLY INCREASE THE POTENTIAL FOR INJURY-PRODUCING CRASHES.

THESE ARE A FEW OF THE ADMITTEDLY MORE OBSCURE INCOMPATIBILITY PROBLEMS WHICH HAVE CAUSED WHAT HAD BEEN A FORGIVING HIGHWAY TO BECOME LETHAL. UNFORTUNATELY, THE PROSPECT FOR MAJOR CHANGE IS NOT GOOD. WITH GAS CONSUMPTION DOWN, SO ARE HIGHWAY CONSTRUCTION REVENUES. AND THE MILLIONS OF MILES OF HIGHWAY THAT NEED TO BE CHANGED WILL REQUIRE A MASSIVE EXPENDITURE.

MORE IMPORTANT, THERE IS SERIOUS DOUBT THAT, GIVEN THE HUGE NUMBER OF DOLLARS NEEDED, THE PRESENT STATE-OF-THE-ART CAN PROVIDE CORRECTIVE SOLUTIONS. SO IT APPEARS CERTAIN THAT ROAD SYSTEM PROBLEMS SUCH AS I'VE JUST DESCRIBED, AND OTHERS LIKE IT, WILL CONTRIBUTE EVEN FURTHER TO THE PRESENT CASUALTY TOLL. THAT IS, UNLESS THE CRASHWORTHINESS OF THE VEHICLE ITSELF IS IMPROVED.

IN CONCLUDING, I WOULD LIKE TO ADDRESS THE THREE ALTERNATIVES THAT THE DEPARTMENT RAISED IN ITS PROPOSAL TO AMEND THE EXISTING AUTOMATIC RESTRAINT REQUIREMENT. ONE OF THESE PROPOSALS -- RECISSION OF THE AUTOMATIC RESTRAINT REQUIREMENTS OF FMVSS 208 -- IS CLEARLY UNACCEPTABLE AND, AS SUCH, CANNOT BE CONSIDERED AN ALTERNATIVE BECAUSE IT WOULD DO NOTHING BUT GUARANTEE AN INCREASE IN THE LOSS OF LIFE AND LIMB ON THE NATION'S HIGHWAYS. FOR THIS REASON, WE SUBMIT THAT THE SECRETARY IS WITHOUT THE AUTHORITY TO RESCIND THIS PROVISION. GIVEN THE OBVIOUS CONFLICT BETWEEN ALTERNATIVE III AND THE MOTOR VEHICLE AND TRAFFIC SAFETY ACT OF 1966, WE ASSERT THAT ONLY CONGRESS HAS THE AUTHORITY TO ORDER THE TYPE OF CHANGE IT PROPOSES.

OF THE OTHER TWO ALTERNATIVES, WE SUSPECT THAT AN ALMOST LIMITLESS NUMBER OF VERSIONS OF ALTERNATIVES I AND II COULD BE DRAFTED, AS HAS BEEN PROVEN BY THE NUMEROUS PROPOSALS THAT HAVE BEEN ADVANCED BY CONGRESS AND PREVIOUS ADMINISTRATIONS.

HOWEVER, THOSE ALTERNATIVE PROPOSALS WILL INEVITABLY BE ACCOMPANIED BY CONTINUED DELAYS IN IMPLEMENTATION OF THE STANDARD AND THUS IN THE MANUFACTURE OF CARS EQUIPPED WITH AUTOMATIC RESTRAINTS. WE DO NOT BELIEVE OUR COUNTRY CAN AFFORD THE TOLL IN LIVES LOST AND INJURIES SUSTAINED THAT WOULD ACCOMPANY POSTPONEMENT OF SAFETY STANDARD 208.

THEREFORE, WE STRONGLY URGE THE SECRETARY TO ACT NOW TO IMPLEMENT THE STANDARD AS PRESENTLY CONSTITUTED AND TO PROVIDE AUTO CONSUMERS WITH A REASONABLE CHOICE OF AUTOMATIC CRASH PROTECTION.

WE BELIEVE THIS TO BE THE SUREST ROUTE TO ACHIEVING AUTOMATIC CRASH PROTECTION FOR AMERICAN DRIVERS. OPTING TO SWITCH THE SEQUENCE OF COMPLIANCE (ALTERNATIVE I) WILL CERTAINLY PRODUCE REQUESTS BY AUTO MANUFACTURERS TO AGAIN DELAY EQUIPPING CARS WITH THE AUTOMATIC PROTECTION.

ALSO, CONSIDERING THE LENGTHY LEAD-TIME THE AUTO INDUSTRY HAS BEEN GIVEN WITH THE SPECIFIC DIRECTION TO DESIGN LARGE CARS FIRST WITH AUTOMATIC CRASH PROTECTION, WE RECOGNIZE THAT GOING AHEAD WITH THE PRESENT STANDARD WOULD, FOR THEM, BE THE MOST FEASIBLE ALTERNATIVE. IN THIS RESPECT, BY GETTING THE STANDARD INTO ACTION, IT SEEMS LIKE THE CLEAREST ROUTE TO ENSURE THAT SMALL CARS WILL ACTUALLY BE ON SCHEDULE TO BE EQUIPPED WITH THE SORELY-NEEDED AUTOMATIC CRASH PROTECTION.

WE COULDN'T AGREE MORE WITH THOSE WHO ADVOCATE IMPOSING REGULATION ONLY WHEN THE MARKET FAILS TO ESTABLISH PROPER PRICES, OR WHEN REGULATION IS NECESSARY TO INSURE PUBLIC HEALTH AND SAFETY. FURTHERMORE, AS A CABINET-LEVEL SPOKESMAN RECENTLY MAINTAINED, THIS ADMINISTRATION IS COMMITTED TO ASSURING HEALTH AND SAFETY IN THE MARKETPLACE THROUGH RULES THAT ARE REASONABLE AND JUSTIFIED.

THIS IS ONE TIME WHEN THE PUBLIC HEALTH AND SAFETY CLEARLY SIGNAL THE DECISION TO BE MADE.

○